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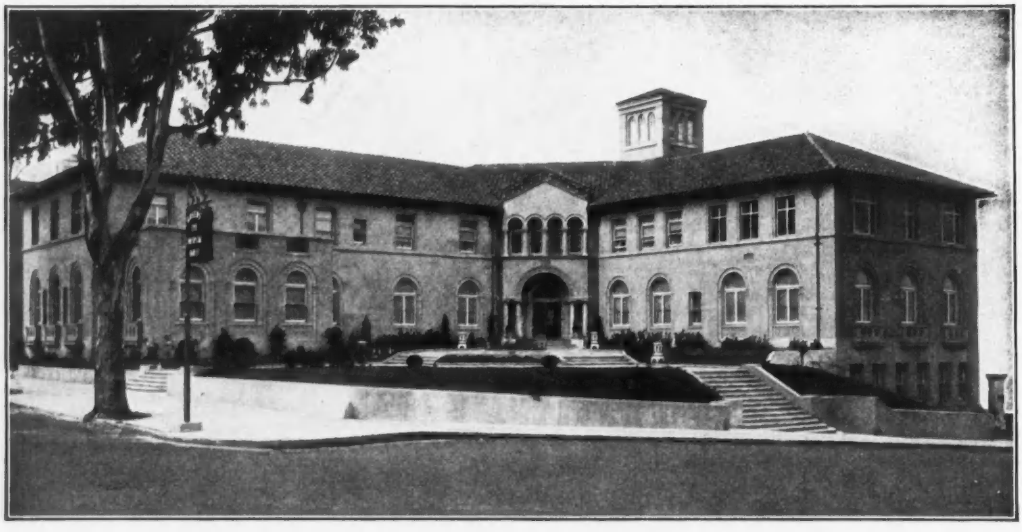

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CALIFORNIA
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VOLUME XXXV AUGUST, 1931 No. 2

HYDROSALPINX—ITS VISUALIZATION BY HYSTEROSALPINGOGRAPHY*

By Albert Mathieu, M. D.
Portland, Oregon

SINCE 1926 considerable experience in hysterosalpingography has been gained by men in many parts of the world. Some comment has been made declaring the procedure dangerous, strangely enough, by those not familiar with it, while those who have had extensive experience in the matter all agree not only as to its innocuousness, but also that it has given us another excellent method for increasing our diagnostic acumen. The literature is sparse on the subject of untoward effects following the injection of the uterus and tubes with iodized oil for the purpose of visualizing the cavities of these organs with the roentgen ray. It is obvious that the men who have had much experience with hysterosalpingography know its limitations and contraindications and they must of necessity be on their guard to avoid any dangers that might result from this manipulation. It is also obvious that strict aseptic and antiseptic precautions should attend the injection; 200 millimeters of mercury should be the upper limit of the pressure used and the injection should not be made in the face of acute active infection of the parts involved. Otherwise the actual maneuver requires about the same intelligence as would the sounding of the uterine cavity. By using these precautions the method becomes safe, sane and valuable, and there should be no need for any hullabaloo concerning its dangers. The men who have pioneered in this work should be given due credit for their efforts. The value of hysterosalpingography is well known and is as welcome as that of visualizing the bronchial tree or the urinary tract, and, mind you, the method is as safe and as firmly established as an aid to gynecologic study as the above diagnostic methods are in their particular fields.

HYSTEROSALPINGOGRAPHY—AN AID TO GYNECOLOGIC DIAGNOSIS

What has hysterosalpingography done as an aid to gynecologic diagnosis? It has done all that could be expected of it; it has markedly increased the number of correct gynecologic diagnoses; it has furnished much new academic knowledge on this subject; it has markedly increased the interest in finished and complete diagnosis; and, above all, it has established pathognomonic signs in one gynecologic condition about which little has been known and in which a correct diagnosis is not often made. This condition is a type of hydrosalpinx which is rather common, not often diagnosed clinically and not often suspected.

TYPES OF HYDROSALPINGES

Froriep in 1834 classified hydrosalpinges into two groups—the one, hydrops tubae fallopii occlusae, in which both ends of the tube were closed, and the other, hydrops tubae fallopii apertae, in which the distal end of the tube was closed and the cornual end open and permeable. It is concerning this last type that this paper is being written. This group comprises about 80 per cent of all small hydrosalpinges, is usually bilateral, and is much more common than one has believed.

There is another type of hydrosalpinx, hydrops tubae profluens, a condition described in medical prints as a hydrosalpinx with the uterine end of the tube open and permeable and the sac full of serous fluid which accumulates rather rapidly at times and empties into the uterus when the tube becomes full. This was considered a rare condition and only a few cases were described. The main complaint of the patient was that she lost a great quantity of clear serous fluid from the vagina more or less periodically. Curtis says that hydrops tubae profluens is a clinical entity, but I am skeptical concerning this condition. I am not satisfied that the cases quoted in the literature were proven and I have my doubts that the fluid in a hydrosalpinx accumulates in the manner supposed by these authors. I believe that all large hydrosalpinges occur in tubes that are closed at both ends, the closure at the cornual end being an actual occlusion or a closure caused by kinking or twisting of the tube. I cannot see how the fluid in a hydrosalpinx sac can increase, once the acuteness of the infection has subsided. There may be some actual increase of the fluid due to the secretion from the glands in the mucosa lining the tube, but the amount of this secretion must be almost negligible. The only condition which I can conceive simulating hydrops tubae profluens would be that in which the fimbriated end of an otherwise healthy fallopian tube was adherent to a large ovarian cyst which would rupture into that area within the circumference of the fimbriated end of the adhered fallopian tube. In such a case, one could see how there might be an occasional evacuation of a large amount of clear fluid through the tube and uterus into the vagina. While presumably this condition would be extremely rare, it could exist. At any

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.
Bibliography will be given in the reprints.

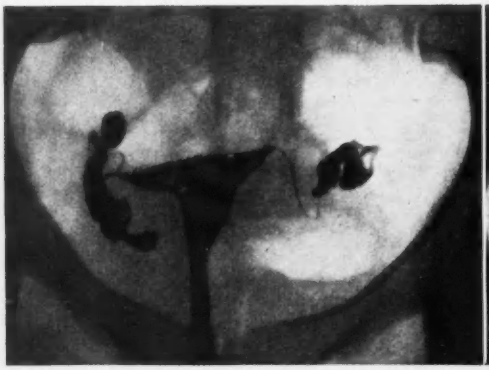

Fig. 1A.—Hysterosalpingogram of normal uterus and tubes. Normal dilatation of the ampullar portion of the tubes with evidence of spilling of the iodized oil at the fimbriated ends.

Fig. 1B.—Twenty-four-hour film after the injection of iodized oil into normal uterus and tubes. The oil is scattered in the pelvis.

rate, the use of iodized oil and the roentgen ray would surely clear up the diagnosis in all supposed cases of hydrops tubae profluens.

ETIOLOGY OF HYDROSALPINX

The etiology of hydrosalpinx is that of salpingitis and perisalpingitis, and beyond doubt the vast majority of cases are due to single mild gonorrheal infections. Many believe hydrosalpinx to be a progression of pyosalpinx. Since the pathologic findings in small simple hydrosalpinx, large hydrosalpinx and pyosalpinx are so different, just so must there be a difference in the severity of the infection, its conduct with regard to the tissues involved and in the patient's reaction to this infection. Why does one patient have a small simple hydrosalpinx with the uterine end of the tube open and permeable while another has a huge hydrosalpinx with both ends of the tube closed? Curtis, who has had an enormous clinical experience combined with laboratory study of gonorrheal tubes, says that a single introduction of infection usually eventuated in relatively mild pathologic changes. Severely diseased tubes rarely result from a single exposure, even though the invading organism is virulent.

Excepting the difference in the type of pathologic lesions formed by the gonococcus, the tubercle bacillus and the pyogenic streptococcus, I believe that the difference in the pathologic end condition is the difference in the severity of the infection. Consider the gonococcus infection. I believe that all of the small hydrosalpinges of which I am speaking are due to mild infections with attenuated gonococci and that the larger

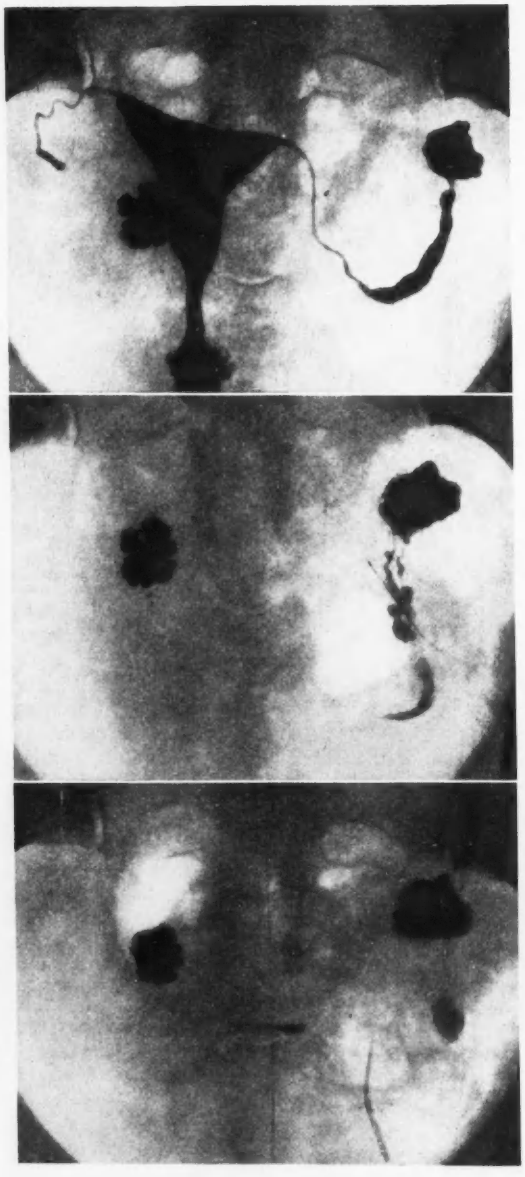

Fig. 2A.—Hysterosalpingogram of bilateral hydrosalpinges. Note the iodized oil contained in sacs at the ends of the tubes. Rosette formation in the distal end of right tube outlining the tucked-in fimbria of the tube. Note the beading in the left tube due to muscular peristalsis.

Fig. 2B.—Film of Figure 2A, taken ten minutes after the removal of the canula. Note that most of the oil in the uterus and tubes is already evacuated, that a portion of the oil in the left tube seems to be gravitating downward and that the oil is remaining in the hydrosalpingeal sacs.

Fig. 2C.—Twenty-four-hour film of 2A. Two sacs of iodized oil hanging in the pelvis. A pathognomonic sign of hydrosalpinx.

Fig. 3A.—In this case the left tube had been removed for ectopic pregnancy. Note the wide dilatation of the ampullar end of the right tube and the lack of evidence of spilling through the distal end.

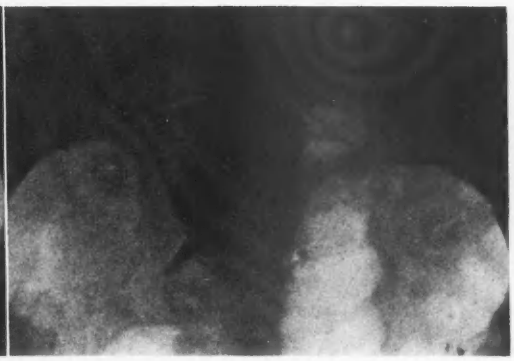

Fig. 3B.—Twenty-four-hour film of 3A, showing sac of iodized oil.

hydrosalpinges, the pyosalpinges, and the tubo-ovarian abscesses are due to a more virulent type of the same germ, or to repeated infections as suggested by Curtis.

A COMPOSITE HISTORY—FROM SEVENTEEN CASE RECORDS

A composite history of the seventeen patients whose disease I am discussing is as follows: The complaints are sterility, dysmenorrhea or dyspareunia, and there is often no history of a gonorrheal infection. They usually complain of mild but continuous pelvic distress; indeed many come to the gynecologist only because of their sterility. On examination, smears are negative for gonococci and there is no evidence of an acute infection, but there is usually found a slight thickening and hardening of one or both Bartholin glands, evidence of Skene gland infection, a cervicitis and tenderness in the pelvis on bimanual examination. Occasionally one feels what seems to be a small cystic ovary or a loop of gut, but usually the pelvic examination is unsatisfactory and no large masses or signs of pelvic disease are found. In some cases I have examined these patients under general anesthesia with the same findings. I mean to suggest that at times the hydrosalpingeal sacs are so soft that they are not recognized. The condition of the Bartholin or Skene glands or the slight tenderness causes one to renew the investigation into the history and this time, with more direct questioning, one can elicit the following history: Shortly after the first intercourse there was noticed painful and frequent micturition, followed by dysparunia, dysmenorrhea, slight but continuous pelvic pain and a vaginal discharge.

This picture is often found in young women, married and sterile. From this history it would appear that the young husband infected his wife with an attenuated gonococcus, having thought himself cured of the disease and having married prematurely. The ensuing infection is a rather mild affair, causing little distress to the woman and almost passing her notice. In this type of case the infection is sufficiently severe to cause an active endosalpingitis and perisalpingitis wherein there is a swelling of the outer layers of the tube and some involvement of the mucosa. The inflammation and swelling of the tube cause a tightening of the peritoneal ring around the distal end of the tube, the fimbria are pulled into the

Fig. 4A.—Film shows uterus deviated to the right and retroverted. The right tube fills to its distal end normally and there is evidence of spilling. The left tube shows a marked dilatation at its distal end with droplet sign (coarse emulsion). The oil appears to be emulsified in the fluid of a hydrosalpinx. A twenty-four-hour film (Figure 4B) is necessary to complete the diagnosis.

Fig. 4B.—Twenty-four-hour film of 4A. Note the iodized oil disseminated in the right side of the pelvis, having leaked out of the end of the right tube. Note, also, the bag of iodized oil hanging in the left pelvis. Diagnosis: Patent right tube, small hydrosalpinx of left tube.

tube by the swelling and sealed in this position and the end of the tube becomes closed. A transudate or an exudate forms and fills the tube with serous fluid. Soon the infection subsides, leaving the tube closed at its distal end, but still patent at its proximal end with the outer third of the tube distended, thin-walled and filled with fluid. A simple hydrosalpinx, averaging four centimeters in length and two centimeters in breadth, remains, attached to and hanging down behind the broad ligament. The adhesions about this sac are not firm or tough and the sac can usually be peeled from the posterior surface of the broad ligament without rupture. This process seems to involve only the distal third of the tube in mild cases. On the other hand, were this infection virulent or were there reinfections, a more severe pathologic condition would be seen and there would be found a large closed hydrosalpinx, a pyosalpinx, a tubo-ovarian abscess or a pelvic abscess.

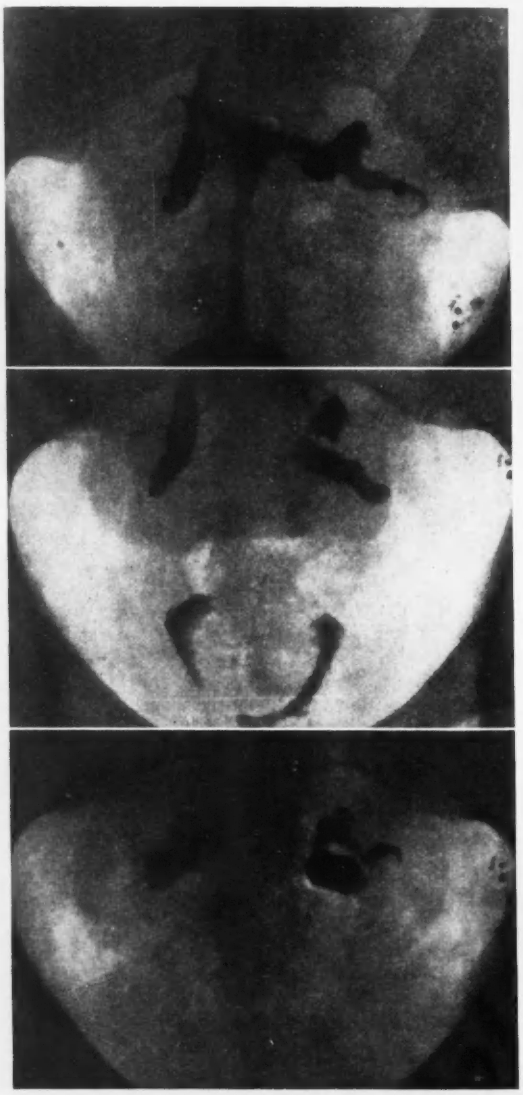

Fig. 5A.—Note marked dilatation of the ampullar portions of both tubes. The iodized oil seems to be retained in the end of each tube. This is strong presumptive evidence of bilateral hydrosalpinx.

Fig. 5B.—Hysterosalpingogram of 5A five minutes after the canula had been removed. Note that there is iodized oil visible in the lower part of the pelvis, probably in the vagina. Note also the two bags of oil hanging in the pelvis—the uterus and the proximal portions of the tubes being free from iodized oil.

Fig. 5C.—Film of 5A, taken one week after the injection of the iodized oil. Note the sacs of iodized oil. Diagnosis: Bilateral hydrosalpinx. The small shadows in the left part of the pelvis, seen in every roentgenogram of the patient, are probably due to phleboliths.

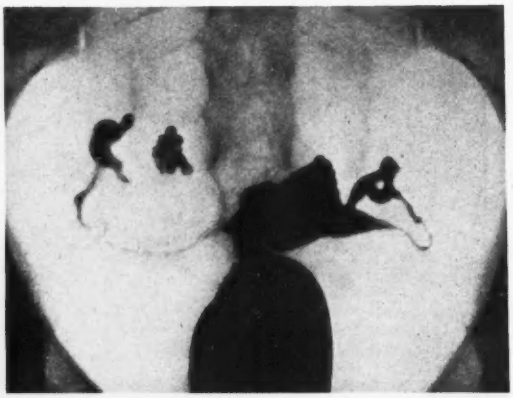

Fig. 6.—This roentgenogram shows well the droplet sign produced by the mixture of oil and fluid in the tube. The twenty-four-hour film showed the oil to be retained in sacs, proof of bilateral hydrosalpinges.

PATHOLOGIC FINDINGS

The pathologic findings are usually as follows: The distal end of the tube is closed, the fimbria being tucked inside and sealed in this position. The distal third of the tube is dilated and converted into a thin-walled sac containing a serous fluid. The thinning of the wall of the sac is usually in direct proportion to the amount of dilatation. The mucosa is not especially involved

Fig. 7.—Note six drops of iodized oil low in the pelvis. This is the droplet sign, an emulsion of oil and other fluid. In this case, this sign was caused by the oil dropping into free fluid in the culdesac, for the twenty-four-hour film showed the oil scattered freely in the pelvis and not contained in a sac. This proves that the droplet sign, though suggestive of hydrosalpinx is not pathognomonic of that condition.

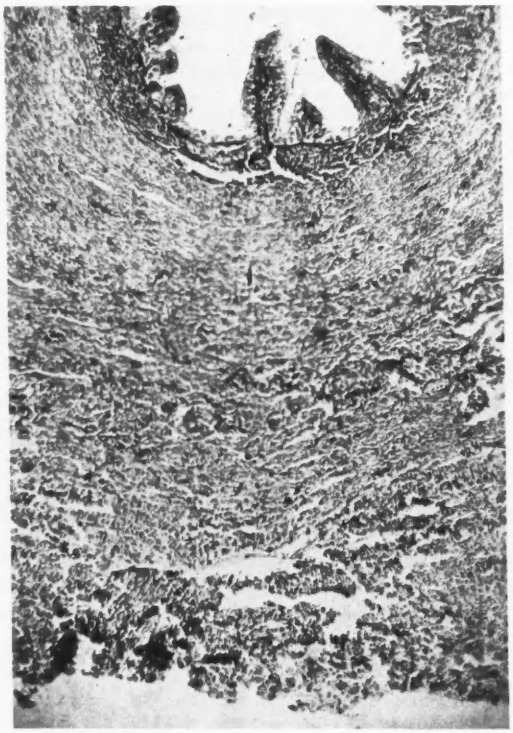

Fig. 8A.—Proximal third of one tube. No changes. Number two and three are from the same tube, and are of same magnification.

except by pressure, and the morphologic characteristics of the tubal epithelium are practically unchanged. The chief pathologic findings are a marked atrophy of the muscular coat, an increase in the elastic fibers and markedly dilated capillaries. Sections of the tube taken proximal to the sac show fairly normal musculature (Figures 8A, 8B, 8C).

HYSTEROSALPINGOGRAPHY

The signs of this disease obtained by hysterosalpingography are pathognomonic. The hysterosalpingogram of the normal tube (Figure 1A) shows filling to the distal end, shows the normal amount of dilatation in its distal third and shows evidence of spilling of the iodized oil through its fimbriated extremity. The control film (Figure 1B), taken twenty-four hours later, shows the uterus and tubes absolutely empty of iodized oil while shadows of the oil are seen scattered throughout the pelvis. Experience with hysterosalpingography has taught us that the proximal two-thirds of the tube empties itself by peristaltic muscular waves into the uterine cavity, while iodized oil in the fimbriated region of the tube, probably because of gravity and because of the dilatation of this portion of the tube, drops into the pelvic cavity. This evacuation of the tube usually takes place within thirty minutes or less after the injection of iodized oil into the normal tube, and has been proven many times by series of roentgenograms taken after the canula was removed. The twenty-four-hour roentgenogram, showing the iodized oil scattered about in the pelvis, is absolute evidence of the patency of at least one tube (Figure 1B).

In the case of hydrosalpinx with the cornual end of the tube open and permeable, the findings are quite different but absolutely characteristic. In the film taken at the time of the injection (Figures 2A, 3A, 4A, 5A), the tube shows a marked dilation of its distal third from three or four times normal, there is no evidence of spilling and the oil seems to be contained in a well-outlined sac in the end of the tube. The proximal two-thirds of the tube appears to be normal. The twenty-four-hour film (Figures 2C, 3B, 4B, 5C) shows the uterus and the proximal two-thirds of the tube empty and clear of iodized oil. The shadow of the distal end of the tube is the same as it was the day before, and if another film is taken a week or two later the same bag or shadow, unchanged, will be seen. This shadow of the iodized oil in this definite unchanging form is a pathognomonic sign of hydrosalpinx. Since the condition is usually bilateral, one sees in the twenty-four-hour film the shadows of two bags of iodized oil hanging down, one in each side of the pelvis (Figure 2C). The emptying of the tube in a case of hydrosalpinx is different from the emptying of a normal tube. The iodized oil in that portion of the tube which still possesses a good muscular layer is evacuated into the uterus by peristaltic muscular waves (Figures 2A, 2B, 2C), while that portion of the iodized oil which is in the sac remains there because the muscula-

Fig. 8B.—Middle third of hydrosalpinx wall. Slight atrophy of muscular bundle with blunting of mucosal folds.

Fig. 8C.—Distal end of hydrosalpinx wall. Shows marked thinning and atrophy of the muscle and obliteration of mucosal folds.

ture in this portion of the tubes is so thinned out that it cannot function (Figure 2C). We know that the emptying of the healthy portion of the tube into the uterus is not due to any siphon mechanism because we have watched this portion of the tube empty itself long after the canula has been removed (Figures 2A, 2B, 2C).

There is still another sign which is characteristic of hydrosalpinx as visualized with iodized oil and the roentgen ray. Often when the oil enters the tube and drops into the saculated portion containing the serous fluid, it mixes with this fluid as a rather coarse emulsion and the shadow on the film shows many droplets of the iodized oil in the fluid in the sac (Figures 4A and 6). There is one possible source of error in reading this sign. When there is free fluid in the pelvis or in the culdesac and the oil spills through the distal end of the tube and falls into this fluid, this droplet sign may be seen. This happens rarely, but when it does happen the droplets are seen low down in the pelvis near the mid-line and they do not appear to be contained in a sac (Figure 7). The twenty-four-hour film will show this oil disseminated throughout the pelvis, whereas if this emulsion is in the tubal end and contained therein it will still be there on the twenty-four-hour plate, not as an emulsion and not showing the droplet sign, but rather as a bag of oil.

CONCLUSIONS

There exists a type of small hydrosalpinx, usually bilateral, the signs of which are difficult to elicit either by history taking or bimanual examination. This condition is not rare in the sterile young married woman and when visualized by hysterosalpingography shows definite pathognomonic signs.

545 Medical Arts Building.

INCIDENTAL HEAD SURGERY—ITS EFFECTS ON THE COURSE OF PULMONARY TUBERCULOSIS*

CLINICAL PRIZE PAPER OF THE SIXTIETH ANNUAL SESSION OF THE CALIFORNIA MEDICAL ASSOCIATION†

By ELEANOR C. SEYMOUR, M. D.
Los Angeles

TO operate or not to operate—that is the question! The advisability of surgical intervention in the course of pulmonary tuberculosis has long been a subject for controversy.

In the case of emergency surgery, such as acute appendicitis intervening in the course of chronic pulmonary tuberculosis, there is little argument that the patient is entitled to the greatly lessened mortality that follows early operation. In elective conditions, where there is a chronic focus of infection or some localized source of discomfort, the question arises as to whether the benefits accruing from the removal of the offending tissues may not be counterbalanced by the aggravation of the tuberculous process in the lungs.

However, modern sanatorium treatment has so improved the prognosis in this disease that there seems to be an increasing advocacy of a conservative resort to surgery in these patients.

COMMENTS ON THE LITERATURE

A perusal of the literature discloses many advocates of head surgery in infection of the tonsils and upper air passages. John C. Boone,[1] after a questionnaire sent out to a large number of chest specialists, concludes: "Opinion is coming more and more to a consideration of tonsillectomy as a therapeutic measure," and adds as a result of his analysis, "There is insufficient evidence of ill effects following removal to offset the positive gains reported." Among the surgical advocates are Pollock, who makes the startling statement: "I am in favor of removing tonsils in every case of tuberculosis and see no reason why it should not be done as it removes one focus of infection." Hyde advises removal of tonsils, if possible, before admission to the sanatorium. Freeman Adams says, "I have always removed infected tonsils in pulmonary tuberculosis, either active or quiescent, and results have justified me sufficiently to continue its practice." However, the majority advocate removal of tonsils in quiescent cases only. Many of those favoring as well as those opposed, qualified their statements by saying, "Each case must be considered individually." This should be the rule, however, in every case of proposed surgery.

Quoting from Brooks[3 11]: "Imperative surgery must be resorted to and it is surprising how well

* This paper was submitted under the nom de plume "Ambrose Paré" and was awarded the California Medical Association Clinical Prize of $150 at the sixtieth annual session of the California Medical Association at San Francisco, April 27-30, 1931.

† Note.—The name of the institution at which this study was carried on was not mentioned in the manuscript. The name has been inserted by the editor.

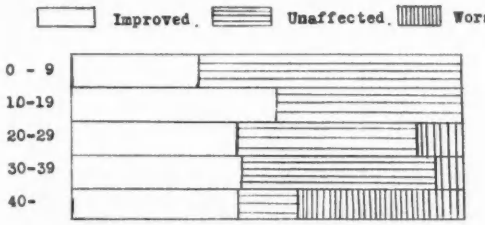

Chart 1.—Age and change since operation.

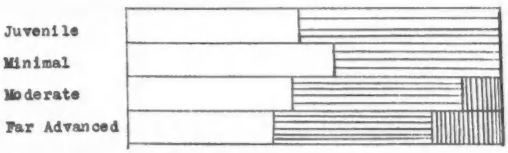

Chart 2.—Stage and change since operation.

far-advanced cases come through even major surgery. Conditions not imperative are often benefited by surgery and the patient is thereby assisted in his battle for health and his recovery hastened. Obstacles such as surgical pathologies should be removed and a majority of all surgical conditions may be relieved if proper methods are followed."

Abbott,[2] in a comparative study of the results of three hundred general operations upon the tuberculous as against an equal number of patients not operated upon and in the same classification, found that those operated upon made the more satisfactory progress. As a result of his findings he has reversed his former opinion against submitting tuberculous patients to operation. Eighty-five per cent of these cases were abdominal sections.

The conservatives agree that in contemplating surgery the stage of the disease must be considered; also the extent to which the operation may be indicated as judged by the subjective symptoms or apparent effect of the complication on the patient's condition. All agree that the availability of expert surgical and anesthetic service should weigh heavily.

WHY THIS STUDY WAS UNDERTAKEN

The present work was undertaken with the thought that a study of the actual results obtained by surgical intervention in elective cases of nose, throat, and ear pathology occurring in the course of pulmonary tuberculosis might well give a more objective basis for the evaluation of the various factors concerned in this problem.

The study is based upon the records of incidental operations on tonsils, sinuses, and mastoid, in one hundred consecutive cases among the three thousand patients cared for at the Olive View Sanatorium of Los Angeles County during the years 1926 to 1930 inclusive. These included fifty-one patients below the age of twenty, and forty-nine others above this age. The operations performed consisted of seventy-eight tonsillectomies, thirteen sinus operations, eight submucous resections, and one mastoidectomy. The patients included twenty-eight children with the juvenile or childhood type of tuberculosis, or with merely a history of contact or undernutrition; twenty-seven instances of minimal or incipient stage tuberculosis; eleven patients with moderately advanced lesions; and thirty-four patients with far advanced pulmonary tuberculosis. The above operations, performed during the years 1926 and 1927, were done for the most part at the Los Angeles General Hospital, and those subsequent to that time were performed by a visiting or resident otolaryngologist at the Olive View Sanatorium. Only those patients were included in this study concerning whom there was adequate information available as to the condition at the time of admission to the sanatorium, and prior to the performance of the operation; and in which there were also data available as to the subsequent course, either as obtained by interviews with the patient's physicians, in the instances where the patient is still in the sanatorium; or from the

TABLE 1.—*Age and Type of Operation*

Age Years	Tonsillectomy	Sinus Operation	Turbinate Resection	Mastoid Operation	Total
0-9	21	0	0	0	21
10-19	27	2	1	0	30
20-29	16	4	5	1	26
30-39	12	2	2	0	16
40-	2	5	0	0	7
Total	78	13	8	1	100

TABLE 2.—*Stage and Condition on Discharge*

Stage	Quiescent	Improved	Unimproved or Died	Still in Sanatorium	Total
Juvenile	14	7	0	7	28
Minimal	13	9	0	5	27
Moderately advanced	3	3	0	5	11
Far advanced	2	13	4	15	34
Total	32	32	4	32	100

TABLE 3.—*Age and Change Since Operation*

Age	Improved	Unaffected	Worse	Total
0-9	7	14	0	21
10-19	16	14	0	30
20-29	11	12	3	26
30-39	7	8	1	16
40-	3	1	3	7
Total	44	49	7	100

record of condition on discharge for those who were at the Olive View Sanatorium for some time after the operation; or from the follow-up records obtained during the past year by the record office of Olive View Sanatorium.

Records show that twenty-one of the operations were performed under general ether or ether and gas anesthesia, while forty-nine were performed under local anesthesia. The anesthetic used in the remaining cases was not recorded. The last fifty pairs of tonsils removed at Olive View Sanatorium were sectioned and stained for histological examination, and six of them, or 12 per cent, were found to contain typical tubercles, with giant cells, epithelioid cells, and areas of necrosis. No instance of malignancy of the tonsil was discovered. The patients included forty-three males and fifty-seven females, which harmonizes with the fact that there are somewhat more women than men in the institution.

EVALUATION OF RESULTS OF OPERATIONS

In evaluating the results of the operation on the condition of the patient, with especial reference to the changes in the tuberculous process in the lungs, it was necessary to take into consideration the course of the disease prior to the performance of the operation. Thus in the case of a patient who was rapidly going downhill, the performance of an operation that neither accelerated nor retarded the progression of the disease could not be held responsible for his poor condition six months later, while a physical decline at the end of six months from the time of operation in a patient who had, prior to the operation, shown good evidence of clearing of the tuberculous lesion would be considered incriminating evidence against such treatment. This evaluation of the patient's condition at present, as compared with what it might have been expected to be, had the preoperative course of the disease been maintained, is, of course, open to considerable question and requires much exercise of judgment on the part of the investigator; it appears, however, to be the method most likely to yield results of value in the final conclusions. The factors considered were seven in number: hemoglobin, sedimentation rate, sputum, weight, pulse, temperature, and x-ray findings.

Of the one hundred patients studied, careful perusal of the records indicates that forty-four were definitely improved as compared to their preoperative condition, forty-nine showed no appreciable change, and seven became definitely worse. One of the two patients in this series who died has been included in the group showing no appreciable change, since her demise was well foreshadowed by her condition irrespective of any operative intervention.

TABLE 4.—*Type of Operation and Change Since Operation*

	Improved	Unaffected	Worse	Total
Tonsillectomy	33	41	4	78
Sinus operation	8	2	3	13
Turbinate resection	3	5	0	8
Mastoid operation	0	1	0	1
Total	44	49	7	100

As may be seen in Table 2, the condition at the time of discharge or at present varied with the stage of the disease, twenty-seven out of the fifty-five juvenile or minimal patients being discharged as arrested and sixteen as improved, as compared with only fifteen of the thirty-four far advanced patients who were considered arrested or improved at this time. This prognosis compares well with the results in the five thousand admissions to the sanatorium since it was first opened.

The change in the patients' conditions, as shown by the evaluation of the final records available in each instance, is shown in Table 3. Here we see that the operative intervention was followed by a setback in none of the minimal, or juvenile patients, and in only one of the moderately advanced cases, but that seven of the far advanced patients showed definite retrogression in the course of the succeeding months. More

TABLE 5.—*Stage and Change Since Operation*

State	Improved	Unimproved	Worse	Total
Juvenile	13	15	0	28
Minimal	15	12	0	27
Moderately advanced	5	5	1	11
Far advanced	11	17	6	34
Total	44	49	7	100

TABLE 6.—*Anesthetic and Change Since Operation*

Anesthetic	Improved	Unaffected	Worse	Total
Ether	10	11	0	21
Local	24	18	7	49
No record	10	20	0	30
Total	44	49	7	100

detailed investigation shows that of the patients operated, on whom such data is available, eighteen have since shown a more rapid sedimentation rate as measured by Linzenmeier's technique; twenty have shown some lowering in the percentage of hemoglobin as estimated with a Dare hemoglobinometer; five have shown more acid-fast organisms in the sputum; eighteen have lost in weight; twenty-nine have shown some increase in the average temperature; twenty-two have shown an acceleration in the average pulse rate; and six have shown spread and softening of the x-ray shadows or enlargement of cavity outlines in the x-ray. Examination of the records indicate that immediately after the operation there was a rise in average temperature and an aggravation of many of the symptoms and signs in many cases, but the tables show that by the end of three months from the date of the operation the condition had already returned to the pre-operative state in most instances.

TABLE 7.—*Changes in Three Months After Operation*

	Improved	Unaffected	Worse	No Data	Total
Sedimentation rate	31	0	19	50	100
Hemoglobin	20	5	18	57	100
Sputum examination	6	51	7	36	100
Weight	62	9	11	18	100
Temperature	37	36	18	9	100
Pulse	49	12	30	9	100
X-ray	25	0	6	69	100

The seven patients in whom the operation was followed by a turn for the worse are worthy of further consideration. In every instance there may be found some complicating or supervening factor often not present at the time of the operation, which may be held responsible for the unfortunate termination, and thus absolve the operative process from responsibility for the outcome. Thus in Case 3621 an acute purulent otitis media, developing months after the operation, may be credited with the higher pulse and temperature which have since existed. Case 3695 had pelvic and gall-bladder complications. Case 4498 had, in addition to his sinusitis, far advanced testicular tuberculosis. While Case 926, rated as far advanced "B," seems to have suffered some untoward effects, he was discharged as far advanced "A" improved. On the other hand, several of these patients, even though the tuberculous condition has shown progression since the operation, have been so relieved of the other symptoms from which they were suffering prior to the surgery that they are well pleased with the results, despite their poor pulmonary plight. In the case of those whose lung conditions have improved, this is even more often encountered and the number of records in which there is definite statement of relief following the operation cannot be lightly disregarded in the final evaluation. It would seem that the younger the patient the earlier or more limited the tuberculous lesion, and the better the patient appears to respond to the ordinary sanatorium régimé the better also the results to be expected from surgery for complicating conditions.

The use of ether as an anesthetic seems well supported by these results, since in every case the untoward course of the disease followed a local anesthetic. This may, perhaps, be partially explained by the usual reluctance to use a general anesthetic in the sicker patients, but the work of Cowper indicates that ether does not, in itself, exert the deleterious effect on the tuberculous lung that was formerly believed.

The type of operation did not appear to have much relationship to the later course of the disease, the age differences in the different groups probably accounting for what might otherwise appear as discrepancies.

TABLE 8.—*Final Changes After Operation*

	Improved	Unaffected	Worse	No Record	Total
Sedimentation rate	36	1	18	45	100
Hemoglobin	28	4	20	48	100
Sputum examination	6	61	5	28	100
Weight	64	6	18	12	100
Temperature	41	24	29	6	100
Pulse	61	11	22	6	100
X-ray	49	2	7	42	100

COMMENT

The prejudices of the past arose largely from inadequate evaluation of the surgical risk and resultant disasters. Any patient is a surgical risk; the one afflicted with a chronic disease such as tuberculosis is substandard and should be evaluated most painstakingly and surrounded by every safeguard before, during and after the operation. Modern methods of diagnosis, refined and adept surgical technique and, above all, a trained anesthetist render all surgical procedures less problematical. There must be unremitting attention to the infinite details which experience has demonstrated are such important factors in the treatment of tuberculosis at every stage. The avoidance of fear and consequent psychic shock weigh even more heavily here than in the case of the average. The subnormal patient requires days or weeks of preparation, and a long period of postoperative rest for recuperation. Speed in operating, avoidance of hemorrhage or undue trauma,[10] maintenance of uniform body temperature, and a properly administered anesthetic are factors contributing to safety.

While local anesthesia[4 5 9] is generally growing in favor among surgeons, should an inhalation anesthetic be decided upon, the choice of the anesthetist is of vastly greater importance than the kind of anesthetic to be used.[6] The occasional anesthetist is just as dangerous as the occasional surgeon. Unhappy results following a general anesthetic usually imply incompetence in its administration. True ether pneumonia from the irritation of the lung by the anesthetic is comparatively rare, but postoperative pneumonia may readily occur, due primarily to aspiration of infectious material.[7 8 13] To maintain the cough and swallowing reflex, nature's safeguards, is the ideal to be attained. A higher percentage of pulmonary complications follow local anesthesia than general anesthesia.[12] The use of atropin, preliminary to ether in tonsil surgery, operating with the patient in a lateral, slight Trendelenburg, or Rose position, are protective measures. Safety lies in good judgment, skill and teamwork—all available in the modern large sanatorium.

CONCLUSIONS

Although unnecessary surgery is never to be recommended, and the possible surgical risk in every operation, however slight, should never be minimized, results as revealed in a careful analysis of one hundred instances of operations on the upper air passages of patients with pulmonary tuberculosis give little support for a pessimistic attitude. When there is definite indication for a rational surgical procedure for the relief of pain or discomfort, or for the removal of an actual focus of infection, the presence of a pulmonary tuberculous lesion should not be considered an absolute contraindication.

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LEUKOPENIA—A REVIEW: WITH SPECIAL REFERENCE TO AGRANULOCYTIC ANGINA*

PART I

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INTRODUCTION.—This subject is not only timely but it seems to me it is appropriate for this hall and occasion in that it leads us into the same fields of pathology, clinical pathology and research in which he whose name these lectures bear performed such valuable service.

The white cells of the blood form one of the important defenses of the body; their usefulness is sure in certain fields and we have reason to suspect a still greater importance in other directions as yet unproven. Any failure of such an essential bulwark of the body is at once a serious matter demanding our attention. We are familiar with the tragic results when leukocytosis fails in septic infections and pneumonia, and within recent times an apparently new and often fatal syndrome, agranulocytic angina, seems to be becoming increasingly common. Also we are encountering more instances of intense leukopenia apparently resulting from the use of modern chemicals in therapy. Is it possible that the human race is threatened with a weakening of this form of body defense or with a failure of this defense against newly developed dangers? Is it conceivable that civilization by reducing the incidence of minor injuries and infections thus lessens the frequent demands which are necessary to maintain a defense at its highest efficiency,

* Stanley P. Black Memorial Lecture delivered at Pasadena, January 12, 1931.

Editor's Note.—The annual Stanley P. Black Memorial Lecture at Pasadena is given in memory of the late Stanley P. Black, a graduate of Northwestern, class of 1887, who came to California in 1897. Doctor Black was professor of pathology in the College of Medicine of the University of Southern California, was health officer of Pasadena for years, and at all times maintained an active interest in public health work. He had much to do with the Certified Milk Commission of Los Angeles. After his death on February 4, 1921, his friends united in getting up a memorial fund, which sponsors the annual Stanley P. Black Memorial Lecture.

and at the same time through the increasing exposure of all of us to chemicals, either in fumes, in medicines, or other contacts, brings about a further depression of the already weakening function of defense of the body through the white cells of the blood?

The Normal White Blood Cell Range.—In the normal adult the number of white blood cells ranges between 5000 and 10,000 per cubic millimeter; above 10,000 justifies the term "leukocytosis"; below 5000 the term "leukopenia."

Within the normal range the count swings up and down with little or no change in the percentage figures of the various types of white cells which together make up the total count. Greater increases or decreases in the total count are, as might be expected, usually chiefly due to increases or decreases in the number of cells of the most numerous form, the so-called polymorphonuclear neutrophil or neutrophilic granular leukocyte or, familiarly, 'polies.'

For our purposes tonight it is important for us to remember that this cell type arises wholly in the bone marrow where its immature forms, the myeloblast and myelocyte, normally remain, and that it forms from 60 to 70 per cent of the total white cells of the blood.

Leukocytosis.—Leukocytosis may be due to an increase of other cell types as, for example, the eosinophilic leukocytosis of trichiniasis; but severe leukopenia cannot occur unless the neutrophilic leukocytes are diminished. Often all the cell forms are coincidentally reduced in number. Perhaps the most marked leukopenia not due to a reduction in neutrophils is that due to a reduction in the number of lymphocytes by radiation.

Leukopenia.—It would seem that leukopenia might come about in three ways, either an increased destruction or a failure of production, or a migration of the cells from the peripheral blood from which our clinical counts are made.

No form of leukopenia has been proved to be due wholly to an increased destruction of leukocytes, although such may well occur, and this factor may play a part in many leukopenias.

Failure of production seems to be a frequent mechanism in bringing about leukopenia. Sometimes the reduction of white cells is but one manifestation of bone marrow failure, in others the white cells alone are affected, in still others the white cells and the platelets. Aplastic anemia is a good example of the first form; in its fully developed picture there is not only anemia, but also leukopenia and reduction in platelets. Red cells, platelets, and leukocytes of marrow origin are all reduced, and only the lymphocytes and monocytes retain their usual numbers.

Leukopenia from redistribution of white cells is the third variety. Usually it is a transitory phenomenon although it may be quantitatively very striking; usually it results from the entrance of a foreign protein substance into the blood.

It is the granular leukocytes, especially those with neutrophilic granules, which leave the peripheral blood and are found in large numbers in the internal organs, especially the liver and spleen.[1] The reduction in count in the peripheral blood under these conditions may be very great as but few of the usually numerous representatives of the granular series of white cells may be left in the peripheral blood. The mechanism of the phenomenon has been much discussed; Bull,[2] who studied it following the injection of typhoid bacilli, believes that the white cells collect in the organs the better to engulf the circulating bacteria. Whatever the mechanism may be, the phenomenon is very rapid and constant. The count of white cells in the peripheral blood often falls within an hour after an intravenous injection of killed bacteria or other foreign protein to a quarter, or even less, of its former level. Subsequently, a leukocytosis appears which may exceed 20,000 per cubic millimeter within twenty-four hours. This leukocytosis is largely formed of young cell forms,[3] but there is no sure evidence that the cells which leave the peripheral circulation during the period of leukopenia do not return.

Miller and I attempted to solve the problem by studying the excretion of nitrogen in rabbits injected with dead typhoid organisms. The total nitrogen, urea nitrogen, and allantoin nitrogen, which is in rabbits the end product of nucleic acid breakdown, equivalent to uric acid in humans, were determined. With dead organisms we obtained no change in excretion, even when very great changes in the white cell counts occurred.

ETIOLOGY OF LEUKOPENIA

These theories of how leukopenia is brought about are the only ones we have to turn to in trying to explain the various forms of leukopenia which we encounter.

1. *Infectious Leukopenia.*—A few infections as, for example, typhoid fever, do not show leukocytosis; a very few dengue, kala azar, and smallpox up to the fourth day give an actual leukopenia. We have no criteria to tell us which infection will have leukocytosis; which, leukopenia. We might reason that a foreign protein enters the blood in malaria and that in low-grade chronic infection an almost symbiotic relationship between the infecting agent and the host exists, but these arguments help us little, with other diseases.

In sharp contrast to the failure of a low-grade infection to excite leukocytosis is the leukopenia resulting from an overwhelming infection of a type which in less severe form would cause marked leukocytosis. This phenomenon is usually encountered in cases with heavy infection by streptococci, pneumococci, or staphylococci.

This form of leukopenia has long been recognized; it was in earlier days described as the "lymphocytosis of sepsis" on account of the relative lymphocytosis which the differential count reveals when the granular neutrophils are markedly reduced. There is no increase in the actual numbers of lymphocytes, but a high percentile rise. To emphasize this relative lymphocytosis, as was formerly done, is unfortunate, for the important change is the fall in the cells of the granular series.

We do not know for a certainty whether this type of leukopenia is due to depression of marrow function or whether the granular cells leave the peripheral blood to congregate in the internal organs, or even if these cells are destroyed. It is commonly assumed by writers that it is the failure of the marrow to maintain the production of cells which accounts for the leukopenia, and such evidence as there is does favor this view, but it is not settled. In favor of the redistribution hypothesis is the fact that such leukopenia usually only occurs when a heavy blood stream infection is present.

It is important to realize that a degree of infection which would excite leukocytosis in one individual would be overwhelming to an asthenic debilitated or elderly person. It is also important not to apply this explanation of leukopenia too readily in all instances, as for example, in agranulocytic angina. The assumption that this syndrome is the result of such an overwhelming infection is, to my mind, wholly untenable in the face of many facts and observations, notwithstanding the wide support prematurely given to this assumption.

2. *Leukopenia in Diseases of the Hemopoietic System.*—Aplastic anemia has been mentioned as the clearest example of leukopenia due to bone marrow failure. The same is true in pernicious anemia, osteosclerotic anemia, and aleukemic leukemia at times. The leukopenia of some stages of Banti's disease is not easily explained.

3. *Toxic Leukopenia.*—A variety of chemicals cause leukopenia, of which benzol and arsenic are the best known; benzol because of its therapeutic use in lowering the white cell count in leukemia, arsenic because of its widespread employment in many processes and treatments, especially in the form of arsphenamin in syphilis.

Benzol seems to act by depressing bone marrow function and so do the x-ray and radium. The anemia, and sometimes thrombopenia, which may appear coincidentally with the leukopenia, seem to support this view.

Arsphenamin leukopenia is more interesting, and deserves special emphasis in view of the temptation to use this medicament intravenously in agranulocytic angina because of the discovery of Vincent's organisms in the ulcers of the mouth and throat.

D. L. Farley,[4] of our university staff, has recently collected a series of thirty-nine cases of leukopenia following arsphenamin therapy; twenty-three of these died. He concludes that no one type of arsphenamin is more apt to produce leukopenia than another and he believes that the direct cause is disintegration in vivo of the arsphenamin so that a benzol-like action takes place. The infrequence of the occurrence suggests that there must exist a preceding weakness of the hemopoietic apparatus in the individuals affected.

The most important point that Farley makes is that one should be alert to recognize early symptoms of bone marrow weakness in patients who are to receive arsphenamin treatment. This suggestion is interesting in view of the free use which some have made of arsphenamin in the treatment of agranulocytic angina.

4. *Allergic Leukopenia.*—I have quoted some of the experimental results in the production of leukopenia by intravenous injection of foreign protein. Much the same results occur in nonspecific protein therapy. The promptness, magnitude and duration of the blood count changes differ with the protein employed.

We are not sure whether or not a similar leukopenia may not occur from the spontaneous entrance of foreign protein either in health or disease. Widal's so-called hemoclastic test of liver function is based on the assumption that a diseased liver permits insufficiently broken-down food protein to enter the circulation. The resultant leukopenia is interpreted as evidence of this disturbed hepatic function. This is unproved, but it is theoretically possible that leukopenia may occur in the absence of actual injection of a foreign protein and without the striking phenomena of protein shock. I emphasize this for further mention in discussing theories which might explain agranulocytic angina.

IDIOPATHIC LEUKOPENIA—AGRANULOCYTIC ANGINA

5. *Idiopathic Leukopenia.*—Having mentioned the commoner forms of explainable leukopenia, let us turn at once to that unexplained form which is commonly termed *agranulocytic angina.* Perhaps this term, given by Friedemann, is not the best name for the syndrome described by Schultz[5] in 1922, but it is certainly that most commonly in use in this country.

Of course, Schultz was not the first to see instances of this syndrome; since his description of it, many older case reports have been found which agree more or less accurately with it. The importance of Schultz' contribution resides in the fact that he realized that the cases which he reported differed from the usual instances of angina on the one hand, and from the recognized cases of leukopenia on the other. Whether or not he was right in believing that the condition was a clinical entity matters little; what does matter is that he distinguished these cases from those in which leukopenia results from intense sepsis or other causes.

It is quite unfair to Schultz to make out that Türk[6] in 1907 described this syndrome. The cases of severe sepsis with low white cell counts which he described perhaps included one or more instances which would today be classed in this syndrome group, but Türk did not distinguish them from the commoner leukopenia of overwhelming infection. However, the *Journal of the American Medical Association*,[7] in a recent leading editorial, certainly gives the other impression and so do a number of writers of current articles.

Once attention was drawn to the syndrome by Schultz the tide turned to the other extreme and the literature has been flooded with reports of cases under this diagnosis which were, in fact, nothing more than the well known leukopenia of intense infection, formerly called "lymphocytosis

of sepsis." Much confusion has arisen from this and also from the uncertain terminology. Blumer [8] of Yale did his best to combat this confusion by an article entitled "The Agranulocytic Blood Picture in Conditions Other Than Angina" in which he reminded us that leukopenia occurred in sepsis and other conditions besides agranulocytic angina.

We are now in the stage in which the original definition of the disease is being extended and altered through the recognition of an unexpectedly large number of cases, many of which differ in some respects from the picture described by Schultz. His six cases were all in middle-aged women, living under institutional conditions, all developed gangrenous lesions of the mouth or pharynx, all had fever, and there was a fatal outcome in each. In each a sharp leukopenia was observed. We now know that males may be affected, that lesions may occur along the intestines and in the rectum or vagina, and that all cases are by no means fatal. Our conception of the condition has changed, but we are still in ignorance of its cause. Let me postpone discussion of the various theories on this point until we have discussed the other features of this interesting malady.

Pathology.—Two kinds of lesions seem sufficiently constant to be accepted unreservedly; the first of these includes the ulcers seen during life in the mouth, the pharynx, the larynx, the rectum or vagina, and found at necropsy at various points along the gastro-intestinal tract. In the mouth it is at the gingival margin that ulcers seem most common, and in the throat it is the tonsils and the pharyngeal pillars which are involved. Rarely the skin is involved; I have seen necrotic areas develop at the finger-nail edge, where the patient had picked or bitten at hangnails.

Wherever the lesion, it possesses similar characteristics; it is a necrotic process, with little or no reactive erythema about it. This has been more evident in the gingival lesions than in those of the pharynx, although even there the lesions have a distinctive appearance. Dr. Fielding Lewis, who has seen several of these cases with me, feels sure he can diagnose the syndrome from the local picture in the throat, and also feels that he never saw this throat picture until the past few years.

The tissue looks dead and its subsequent sloughing out bespeaks its necrotic state. Perhaps I have imagined it, but it has seemed to me that with improvement in the blood count and general condition, there occurred an increase in the reactive erythema about the lesions. In a case which is doing badly the tissues almost melt away. Neighboring lymph nodes enlarge and become painful, and the spleen may enlarge considerably. The liver also may enlarge, and jaundice has occurred in perhaps half of the reported cases.

The other lesion concerns the bone marrow, and here the evidence is less clear. In the first place, the bone marrow is, of all tissues, that most difficult to be dogmatic about. In the second place, one must be cautious not to be led into describing, on perhaps inadequate evidence, findings which on theoretical grounds one might have been anticipating. Be that as it may, the literature seems to justify the statement that the bone marrow in agranulocytic angina is distinctly abnormal.

It has been described as grossly liquid and of a variety of colors ranging from yellow to red. Specimens obtained by sternal puncture during life or at autopsy have shown varying degrees of hypoplasia with scattered patches of necrosis. Few, if any, of the progenitors of the granular leukocytes, the myeloblasts and myelocytes, are present and no adult granular leukocytes are seen. In sharp contrast the erythrogenetic centers are normal, although the red color of the marrow is more often due to hemorrhage than to hyperplasia of the red cell forming centers. This term is an unfortunate one for it implies a general hyperplasia of all three bone marrow elements, while the actual state may affect only the production of erythrocytes and not the platelets or leukocytes.

Also in agranulocytic angina the parent cells of the platelets are usually present in normal numbers although some of the individual cells may show degenerative changes. Such myeloblasts and myelocytes as are present are badly degenerated.

Probably an occasional case will show a hypoplasia of erythroblasts or of megakaryocytes or both, for cases have been reported with anemia and with thrombopenia. Such cases obviously approach closely the picture of aplastic anemia.

Doctor Baldwin Lucke of our pathological department has also observed and described a necrosis of the intimal and muscle layers of the smaller arteries much like that seen in so-called malignant hypertension.

Laboratory Data.—The urine is that of any febrile condition; the feces may contain blood if ulcers of the bowel are present.

Interest centers on the blood count. The hemoglobin and the red cell count may be normal, and the early presence of anemia suggests a preceding cause. A few cases are on record with unexplained severe anemia, but these are open to the suspicion of being instances of aplastic anemia. Anemia has played no part in the cases which I have seen, but in each we have employed frequent transfusions. In fact, plethora and polycythemia have worried us more than anemia.

The number of platelets has been normal in some cases, low in others. Unfortunately the majority of reports contain no count of platelets. In our case Mrs. S. the lowest figure was 67,000. Kastlin [9] reports that the platelet count was normal in twenty of twenty-seven cases collected by him from the literature, but no figures are given and it is probable that the cases were of various kinds of leukopenia inasmuch as one of the two personal cases reported followed upon the injection of arsphenamin. Allan's [10] case had a platelet count of 15,000 and a widespread purpura. Aubertin and Levy [11] include thrombopenia as a constant feature of the condition, while Friede-

mann states that in all his cases the number of blood platelets was normal or increased. More data is needed on this point.

It is the white cell count which is most important. At the height of a severe attack the picture is easily described; the total count is down to 1000 or less. Counts as low as 400 are not uncommon. The lower the total count the fewer granular leukocytes, neutrophilic, eosinophilic, or basophilic are seen; while with a very low total count often none may be discovered in a prolonged search of the stained blood film; only lymphocytes and monocytes are present. When, for example, the differential count reads 90 per cent of lymphocytes and 10 per cent of monocytes and the total count is 800, there is not only an absence of granular cells but a distinctly reduced number of lymphocytes and monocytes present.

When only an occasional granular leukocyte is seen, the cells are apt to appear irregular and poorly stained as though damaged.

At first it was thought that the leukopenia followed the angina; now it is recognized that often, if not always, the white count drops before the onset of systemic or ulcerative symptoms appear. Apparently the onset of leukopenia precedes other symptoms by several days and some have attempted to relate this period to the assumed duration of life of the leukocyte, which is about four days. It is suggested that the count does not reach its lowest level until four days after the marrow has ceased to produce cells. During this period the cells already in the circulation die off. Many records agree that the early drop is gradual and not severe; early counts give figures of from 4000 to 2000. If the attack progresses, the leukopenia becomes more marked, the last count before death often being the lowest. If the attack proves mild, the leukopenia never becomes very severe, and if the attack aborts without going on to ulceration the count may drop no further and may, in fact, soon rise.

Improvement in symptoms, local or general, is always preceded or accompanied by a rising white count, but convalescence may continue while the white count remains in the neighborhood of 5000. Evidence supports the assumption that during the period of rising count young granulocytic forms are first to appear and are present in greater than normal percentages until time sufficient for them to mature has elapsed.

(To be continued) Pg 173

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DEAFNESS—A VITAL SOCIAL ECONOMIC AND MEDICAL PROBLEM*

By FRANCIS L. ROGERS, M. D.
Long Beach

DISCUSSION *by Isaac H. Jones, M. D., Los Angeles; Ferris Arnold, M. D., Long Beach.*

MY object in presenting a discussion of a topic so old and time-worn as deafness is to bring before you, if possible, a very practical discussion of the needs of the deafened and our responsibilities as physicians in the rehabilitation of the deafened.

THE NOMENCLATURE "DEAFENED"

In dealing with this subject I have chosen the latest nomenclature, using that broader and more inclusive word "deafened" instead of deaf.

Dr. Alexander Graham Bell, famed inventor of the telephone, whose work in the aid of the deafened has given him the honored title of "patron saint," always referred to the condition as "imperfect hearing," rather than "hard of hearing." His own wife was for many years one of the incurably deafened.

Primitive peoples destroyed their deafened and blind, or held them in awe, keeping them locked up or in seclusion, as they did their insane. A deafened person was regarded as a family encumbrance and a great disgrace. Later they were allowed to live, but were treated with great cruelty. In Holy Writ we read that "The Lord commanded Moses, saying, Speak unto all the Children of Israel and say unto them, Thou shalt not curse the deaf, nor put a stumbling block before the blind, but shall fear thy God."

Under Roman law, persons born deaf were deprived of all civil rights and were required to have guardians.

THE HANDICAP OF DEAFNESS

Deafness, no matter how slight, is a mountain some cannot climb.

Few learn to accept the handicap gracefully. In fact practically everyone who acquires deafness goes through "hell" mentally, physically and unfortunately in most instances, economically.

If any one of us should try going about with our ears stuffed with cotton, shutting out all pleasant sound, we would better appreciate the handicap of the deafened and the tragic plight of the person, child, or adult who has lost, or is losing, his hearing.

Seventy-five years ago Sir William Wilde, a noted Dublin aurist, summed up deafness in one aphorism: "There are two kinds of deafness—one due to wax, which is curable; the other is not due to wax and is not curable." Is it not a regrettable fact that, with all our modern study concerning chronic deafness, this statement is still so largely true?

In the realm of specialized medicine the otologist has accomplished much in the treatment of the sick both medically and surgically, but in cases

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of chronic "deafness," either of the middle ear or labyrinth, there are, with rare exceptions, few laurels to be recorded. There are still two regrettable facts confronting physicians—the incurability of so many who apply for relief, and the equally well known fact that, despite all efforts, the percentage of incurably deafened is steadily increasing.

HEARING ACUITY STATISTICS

The total number of deafened persons in the United States has now been quite accurately determined to be about ten million. Of that number over three million are of school age and are about ten per cent of our school population. It is from this school group that much of our knowledge concerning the incidence of deafness has been obtained.

Case records of otologists have been difficult sources from which to secure accurate information. Our standardized examinations of men, preparatory to their entry into service for the World War, and the testing of hearing of large groups of children in the public schools has perhaps given us the most dependable data. What has been needed for a long time has been a practical instrument combining great accuracy with speed for mass service in measuring the hearing. Such a device should be able to record the lesser defects, which are the prodromal signs of more serious oncoming loss of hearing.

AUDIOMETER MASS TESTING

At last such a mechanism has been perfected by the Western Electric Company, which has developed the No. 4-A phono-audiometer. This portable and sufficiently simple electric audiometer, with multiple ear attachments, can be accurately operated by any well trained school physician, nurse, or teacher, so that the hearing of twenty-five to one hundred persons, whose intelligence is that of a normal child of seven years, can be recorded in the space of forty to sixty minutes. The average cost of the test is estimated to be ten to twelve cents per pupil. The initial cost of the instrument is considerable, but not more than any city or county school system can well afford.*

In California the city schools of Los Angeles, Long Beach, San Francisco, Fresno, San Diego, Santa Barbara, and Stockton, each now have and are using the No. 4-A audiometers. A number of other school systems in the state have already budgeted for this instrument and at an early date will have it in use. The plan usually adopted is that all teachers and pupils be given an anuual or semiannual hearing test. Where advisable, the test is repeated for greater accuracy and for study of doubtful or problem cases.

HEAVY FINANCIAL BURDENS ON SCHOOL SYSTEMS

Many school systems in the United States have undertaken a study of the cost of imperfect hearing to the taxpayer due to retardation of their school population. In the city of Rochester, New York, an examination of the records of 349 deafened retarded children showed that this group had repeated grades 441 times. A few of these children had repeated their grades as often as five or six times. The control used was 349 normally hearing children in the same school who had repeated grades but 130 times. It was thus determined by computation that 211 children whose class-repeating work was traceable to deafness had cost the city of Rochester the sum of $26,460, an average of $125 plus per pupil. This ratio during the average school life of the child would indicate that the cost for repeaters in Long Beach would amount to $2,321,000; in Los Angeles County to $24,317,750; in the State of California to $75,960,000; and in the United States to $1,964,884,750. These figures are all far too low for California, since the average annual cost per pupil is greater. In Long Beach the per capita yearly instruction cost is $156.60, to which should be added a capital investment cost of $94.04. This would make an actual cost per pupil in many California cities of $250.64, an amount which is double that upon which these basic cost estimates are computed.

TRAGEDY OF DEAFNESS TO INDIVIDUALS

We may be very certain, therefore, that in any large school system a huge sum is wasted on these deafened repeaters. A considerable amount of money in any school system may, therefore, be wisely spent in the detection of deafness in its early and most preventable or curable stages. It should also be remembered that these retarded children become careless and discouraged and leave school at the first opportunity. A large majority of them have good minds, but ultimately find themselves in the unskilled labor class, due chiefly to want of education.

We must also realize that about 90 per cent of the vast army of our adult deafened in childhood or later were incipient cases and were curable. The cost in dependency, loss of efficiency, and unnecessary mental and physical suffering is simply appalling.

We physicians, leaders in public health work, advocating and believing in preventive medicine, should do all we can to teach and practice deafness preventive measures at every opportunity. A generation ago tuberculosis, typhoid and yellow fever, malaria, and diphtheria were our major health problems. The cause of each of these is now known and a program of prevention and cure have relegated each to near extinction or to a place of secondary importance. Today cancer, heart disease, and incurable deafness are the three major public health problems in the United States. Each is definitely on the increase and each has reached appalling proportions. Of the first two diseases little is known relative to their causes. Great concern is felt and generous gifts have already been made to enable research workers to pursue studies in both cancer and heart disease.

* Editor's Note.—See article on Conservation of Hearing and the Hard of Hearing Child, by Frank H. Rodin, in November, 1927, California and Western Medicine, page 643.

As to the problem of deafness, little has been accomplished so far in the study of its causes or prevention, but prospects are brightening.

With the coöperation of the membership of the American Otological Societies and many otologists in Europe, and with funds from interested laymen, an intensive research program is being launched to investigate the causes of incurable deafness, particularly the causes of otosclerosis. Johns Hopkins, Columbia, and Northwestern universities are coöperating and have offered laboratory facilities to carry on particular phases of this research work. Deafened persons throughout the world are invited to coöperate by devising in their wills to a deafness research foundation the gifts of their temporal bones (Hooper Foundation of the University of California) with a carefully made history of each case.

The Carnegie Foundation has made available $90,000 to start some of this research work. Two and a half million dollars of the endowment fund is hoped for in gifts within five years, and an ultimate $10,000,000 endowment, it is expected, will be provided. Thus a long delayed and greatly worthwhile undertaking has been launched. The fact that so little systematic research work in this field has been undertaken up to the present time lends hope to the thought that by these efforts the causes of deafness may be found and valuable light thrown upon its prevention and cure.

THE BOON OF LIP READING

"In all nature to cease to grow is to perish." So it is with the deafened person. His education was once a hopeless and is still a difficult problem to solve. It is recorded that Lucretius wrote:

> To instruct the deaf, no art could ever reach,
> No care improve them, and no wisdom teach.

In the seventeenth century the venerable Bede described a miracle wrought by his former teacher which consisted in teaching a deaf person to speak.

There is an old saying, "When God closes one window, he opens another a little wider."

This is what happened in 1864, when Harriet B. Rogers first taught a little deaf girl to read lips and to speak our common language. Miss Rogers learned the art of lip reading from Julius Muller-Walle of Hamburg, Germany, the inventor of the system of lip reading which bears his name. He was the founder of the first school of lip reading. This method is still widely taught in Europe and in this country in schools for the deafened.

In 1903 Edward B. Nitche of New York modified the Muller-Walle method, and founded a school in that city for teaching what is known as the Nitche System. Since that date lip reading has largely supplanted the finger alphabet for all the deafened save a small group of the institutionalized, who are almost or quite totally deaf or are both deaf and blind.

Several of the larger colleges and universities in the United States now give summer or regular courses in lip reading for teachers, and there are many large public school systems in the United States where lip reading classes for deafened pupils are conducted by specially trained teachers. Since adult education has become established in many of our public school systems the adult deafened are being offered well arranged, graded courses in lip reading. These are supplemented by cultural studies for those advanced enough to profit by such instruction.

The Long Beach Polytechnic High School established their first lip reading classes for adults January 2, 1922, under the leadership of one of their present teachers, Mrs. Louise K. Wilmot (née Miss Kline), a former public school teacher who had been trained in the Nitche School, after having herself become a victim of incurable deafness. She was the first deafened teacher of lip reading to be certified by the California State Board of Education.

SPLENDID WORK OF THE LEAGUES FOR THE HARD OF HEARING

Perhaps the greatest triumph for the deafened of modern times is seen in what the deafened have accomplished for themselves. Notably by their coöperation in the establishment of leagues or societies for the practice of lip reading for mutual, intellectual, social, recreational, and economic rehabilitation. In 1916, leagues had been established in New York, Chicago, Boston, and a few other of our large cities. By 1919 the number had increased to thirty-five, and has now reached ninety-three—a phenomenal growth.

Very early Dr. Wendell C. Phillips of New York, a noted otologist and practical philanthropist, saw the possibilities of bringing these widely separated groups into closer touch for mutual help and larger service. This resulted in the founding of the American Federation of Organizations for the Hard of Hearing. He became its first president. This national federation is enlisting the active coöperation of the deafened themselves in their problems, coördinating local leagues with all other agencies interested in the problem of the deafened. Almost all of the city leagues have a large and enthusiastic membership. All are rendering a valuable service to the cause of the deafened in their respective communities.

THE "VOLTA REVIEW" AND "AUDITORY OUTLOOK" PUBLICATIONS

Dr. Alexander Graham Bell, previously mentioned as an ardent sponsor of measures for aiding the deafened, founded and financed in 1920 the *Volta Review,* the first official publication in the United States devoted exclusively to the interests of the deafened. About one year ago the Federation of Organizations of Hard of Hearing undertook the publication of another monthly journal, *The Auditory Outlook,* as its own official organ. Both of these publications furnish dependable news items and other information each month of especial interest to the deafened. They afford a splendid mouthpiece through which the deafened themselves may voice their thoughts.

Each of these journals is ably edited by a deafened person. One, at least, of these magazines should be on the waiting-room table of every physician in the country.

LIP READING TRAINING OF MAJOR IMPORTANCE

Lip reading is practiced to some extent, no doubt, though unconsciously by most of us who hear well, but for the partially deafened or the very deaf it is a constant aid and a priceless art. Otologists generally now recommend the teaching of lip reading to all those whose hearing is below 70 per cent in their best hearing ear. It is now quite generally accepted as the best known substitute for or aid to the hearing ear. Physicians and school authorities seem in perfect agreement that upon the first suggestion of oncoming incurable deafness, whether in a child or an adult, the acquiring of lip reading should be undertaken without delay. Testing of the hearing of the preschool age child is especially recommended and the teaching of lip reading should be started for any whose hearing is found to be subnormal from chronic causes. In many states incurably deafened children are legally admitted to lip-reading classes in the public schools as early as three years of age, and the younger the children the more readily they acquire facility in lip reading. Children with impaired hearing in school and out often increase their handicap by the strain put upon their hearing organs. The acquiring of lip reading relieves this strain and often permits the child to continue his studies in the regular classes upon acquiring a thorough mastery of "hearing through the eyes." Deafened children under twelve years of age, of normal mentality become good lip readers in four to six months. When this has been accomplished they should then be returned to the regular classes both for their social and mental contacts, and because of the lessened cost of their further education.

No person of average mentality who sees well is too old to learn lip reading. I have observed several women and a few men in our Long Beach adult education lip reading classes who have passed their seventieth year, even as old as eighty-five years, who have had their social and psychologic point of view greatly improved by taking up lip reading in these special classes. The benefits derived by the members of the league through frequent social get-together meetings of the members, where games, dancing, dinners, picnics, and occasional lectures, and the women's groups for their afternoons at needlework, making garments for the local charities, have brought out the "shut-ins," the recluses, the discouraged and disheartened, and has performed a service in social uplift for themselves that cannot be overestimated. Learning to "hear through the eye" is the best and often the only means of restoring the deafened individual to an approximately normal life.

Dr. Wendell C. Phillips, in the course of some recent remarks, said: "Of all the accomplishments that may be reasonably attempted by a deafened person that of lip reading offers the greatest hope, and we otologists fail to meet our highest duty when we neglect to advise even those in the earlier stages to commence to 'hear with the eyes.' The skill of many lip reading pupils almost approaches a genius, and the relief of nerve strain among lip readers may easily be noted."

Dr. Norval H. Pierce, formerly a noted otologist in Chicago, but now retired and living near La Jolla, California, has often told his incurably hard of hearing patients, "You should take up lip reading. It is one of the greatest achievements I know of, and by far the best substitute for good ears yet known."

The Chicago Otological Society last year, through the efforts of its president, Dr. Harris, voted every member of the society a member of the Chicago League for the Hard of Hearing. If every member of the society now being addressed would go home and join his local league, or if he does not have one in his city proceed to organize one, he could add a real jewel to his crown. I feel very proud to have been a charter member of the Long Beach League and to have had some part in the splendid work it has accomplished.

DEAFNESS AND SAFETY HAZARDS

From the standpoint of safety the wide prevalence of deafness has become a very serious problem in all countries, particularly in the United States. Recent statistics tell us that 12 per cent of all traffic accidents are directly traceable to deafness of driver or pedestrian. In Vienna, Austria, all the deafened are required to register, and more than one hundred thousand of them have membership in an organization known as the "Vox Society." Each member is pledged when on the street or highway to wear a brassard or band ten cubic centimeters wide, yellow in color, on his left sleeve (they have left-hand drive there) on which are three round black spots the size of our fifty-cent piece. This insignia is well known to the police and the motoring public. It is approved by city authorities, physicians, and the public. With the continually increasing list of fatalities and accidents due to imperfect sight and hearing, we physicians, guardians of the public health and welfare, should increase our efforts to secure added traffic safeguards for the deafened as well as for others.

VOCATIONS FOR THE ADULT HARD OF HEARING

I have referred to deafened teachers elsewhere. A few of them by a process of reëducation find their economic independence restored as teachers of the adult deafened, but a great majority must temporarily or permanently change their occupations and very frequently to a much less remunerative and less congenial form of employment. Of all deafened people, about 37 per cent must radically change their occupational plans for life. If the deafened person is a woman, she may marry and thereby become economically independent, but even then she often suffers much unhappiness through apprehension, often regarding herself as unfit for motherhood because she may transmit her misfortune to her offspring.

There are a considerable number of occupations in which the deafened may engage and expect but a slight economic handicap. Such positions as x-ray technicians, nurses, typesetting machine operators, multigraphers, engravers, beauty culturists, floor layers, acetylene welders, gardeners and in general agriculture, but the educated man or woman usually confronts a very decided reduction in his earning capacity and finds necessary a very definite readjustment of his personal and family standards of living. For these we must feel a keen note of sympathy, for deafness has placed upon them a heavy burden. Our duty as physicians is to offer these people every possible encouragement, every ray of hope. Here again lip reading, obtained often through a local league for the hard of hearing, offers the greatest intellectual, social and economic assistance.

FEDERAL REHABILITATION PROGRAM

After the World War the government established a Bureau of Rehabilitation where deafened and other war disabled men and women might secure special educational guidance while readjusting their shattered lives. Later, legislation permitted states to extend this to all handicapped citizens, the states and the federal government sharing equally in the cost. California, through its Department of Education, Rehabilitation Division, is carrying on this work by means of traveling social service workers and teachers somewhat after the plan which permits the state to provide teachers for the blind in their own homes. Many deafened persons are finding help and larger opportunities through this agency.

MECHANICAL AIDS TO HEARING

I purposely shall refrain from any lengthy discussion of the multitudinous number of mechanical aids to hearing, other than to say that there are now a few very well worthwhile portable hearing instruments, which in selected cases are of practical use to the deafened. The larger instruments for installation in churches, theaters, and auditoriums give practical aid to the hearing for larger groups of the deafened, especially when supplemented by the art of lip reading.

One of these devices, the Radio-Ear, is being used extensively to reëducate the ears of the deafened persons who never heard, or once hearing have lost their sense of sound through prolonged disuse of their hearing organs. Others perhaps worthy of special mention are telephonic devices with which the very deaf may hear by means of bone conduction or finger touch. One of the latter equipments has been used at Gallaudet College for the Deaf under the direction of Professor Gault of Northwestern University, who describes it as consisting of a transmitter which magnifies the human voice about 175 times. These immensely multiplied vibrations are carried to a receiver somewhat like the radio-ear phone. The deaf listener presses one finger against the disk to get the vibrations and hears through his touch. A less elaborate device is being offered for attachment to the family radio or telephone, with a contact plate on the transmitter held between the teeth or placed over the mastoid bone, permitting sound to pass by bone conduction to the organs of hearing.

No group of handicapped individuals suffering with an incurable disease has had so formidable an array of human vultures prey upon them. The quack cures advertised to cure chronic deafness, both as to concoctions and devices, are legion.

Who among you has not scanned the advertising pages of magazines and newspapers which, to the great discredit of such publications, print for profit false and misleading advertisements of machines that are useless if not actually harmful to the deafened.

We should make it our business to be informed about such appliances and be able to furnish dependable information to those who come to us for advice. It is a service the deafened themselves should seek from us and every doctor be able to honestly and dependably provide.

PREVENTION THE KEYNOTE

Finally, the greatest hope for the deafened lies in prevention rather than in cure. Unfortunately we rarely see the deafened early enough to be of the greatest assistance. Too often we only see the end results when any mode of treatment is of little avail. Earlier attention to the ears, nose, sinuses, and throat during the acute sicknesses of childhood is all-important. The early removal of diseased tonsils and adenoids and early drainage of abscesses in ears, teeth, or sinuses will do much to avert disaster later, especially for those who are predisposed by heredity to deafness. Such measures, with general and special health education for parents through child welfare agencies and the teaching and practice of birth control, and general home sanitation in the interest of better health, appears to be our future hope for the deafened, and I might almost say for the future of the human race.

As physicians and health teachers it is our duty to bring these messages to all the people, for it is by their coöperation the present problem of the deafened may be solved.

Will we of the medical profession accept this great opportunity and responsibility or fail in the undertaking?

1214 Pacific Southwest Bank Building.

DISCUSSION

Isaac H. Jones, M. D. (1930 Wilshire Boulevard, Los Angeles).—Deafness cures and cancer cures—what an endless amount of confusion has centered around such subjects, not merely the plain charlatanian, but an actual understanding of what really can be done and what really cannot be done. I venture the following three paragraphs, giving three questions and answering "Yes" to each one.

(1) Question: Are there certain conditions of the ear in which the deafness can be relieved and the hearing improved? Answer: Yes.

(2) Question: Are there certain conditions of the ear in which deafness cannot be relieved and the hearing cannot be improved? Answer: Yes.

(3) Question: Is it true that regardless of the nature of the hearing defect that something can be done to improve and relieve the condition of the individual himself? Answer: Yes.

The first two sharp classifications concern the ears themselves. It is possible now, by precise methods of measurement, to determine in which classification the ear of any given individual belongs. The third paragraph, however, embraces all types and indicates even the most utterly forlorn type of case, such as Helen Keller, that something can surely be done for the individual herself. In the patient who has vision, of course the great help is in lip reading. Another help is along social lines, and this is gradually attaining a greater and greater usefulness through the American Federation of Organizations of the Hard of Hearing, which has an excellent local chapter in Los Angeles.

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Ferris Arnold, M. D. (609 Security Building, Long Beach).—Doctor Rogers has given us a very able and appropriate paper. No doubt his figures as to the number of hard of hearing in this country has been news to most of you.

Those of us who are aurists find the problem of informing the patient as to the exact status of his hearing a difficult one. One needs to be cautious in statements made because of the psychic element involved. The patients are always apprehensive and expect the worst. Fortunately a great many of them have some hearing left, and this fact should be stressed to them. It is a question as to what always constitutes useful hearing.

In our experience with the audiometer we have been careful to explain to the patient just what the curve means in terms of useful hearing and are careful not to use the expression of percentage. Many people have slight loss of one or more of the tones without appreciable difficulty in hearing.

An interesting survey of causes of deafness in children in public schools for the deaf has recently been completed by the Division of Medical Science Committee, National Research Council, under the direction of Dr. George E. Shambaugh of the University of Chicago. This report covers examination results in about five thousand cases. Of these cases, 3334 were congenitally deaf; 2014 had acquired deafness. Of the acquired cases, 61.71 per cent acquired deafness before three years of age.

❋

Elwood A. Stevenson (Principal, California State School for the Deaf, Warring and Parker streets, Berkeley).—To the Editor: Your letter of February 13 has interested me very much and naturally has struck a very responsive chord since this is the very thing most of us have been wanting to do for years.

The field of special education has suffered for years because of the lack of understanding on the part of the layman. Of all education, it is the most scientific and most difficult. Its advancement and progress depend largely upon the understanding and appreciation of the public.

One of the most important vehicles for the dissemination of proper information and correct data would be the medical profession. It is your group that contacts the "special" child and his parents and it is you to whom the parent looks for information and guidance. Therefore, in all special education the physician and specialist play an important rôle. I am only too happy to be of assistance and service to you in this request and am at your command at any time.

First, keep in mind that a deaf person (child or adult) and a deafened person present two entirely different problems, educationally and psychologically. Never confuse the two in any way. The deafened person is the hard of hearing individual. In very simple language and analysis the distinction is this:

1. The *deaf* person, although in eight cases out of ten possessed of sound perception, does not hear and respond intelligently to spoken thought or language. In testing he may test 20 per cent and 35 per cent in response to sound stimulus, nevertheless this is not hearing as you and I commonly understand the term hearing.

2. The deafened or hard of hearing person is one who, although his hearing defect may register as low as 10 per cent, retains actual hearing and can respond intelligently to spoken thought and language provided the source is brought within his hearing range, either through loud speaking or through the means of hearing aids.

All success in the attack of the problem of the child and the adult (the deaf and the deafened) depends entirely upon the proper understanding and appreciation of this premise. Emphasize this difference and distinction, hammer it home at every opportunity, and you will be rendering both types a far-reaching service. I am afraid that I could go on continuously on this very vital and little understood subject, but I must stop in order to afford you the data requested.

In educational work with the deaf, it is all instructional and demands specially trained and experienced teachers. The minimum special training in addition to the regular normal training is one year. To use methods of amelioration for the deaf that are commonly used for the deafened (hard of hearing) would be ruinous and contrary to all procedure.

For the deaf the State of California has a residential school at Berkeley, California. Here deaf children between the ages of five and twenty are admitted. They are taught speech and lip reading and all subjects common to the public school system. The course carries the average deaf child to and through one and one-half years of high school work.

Then, too, certain city school systems such as San Francisco, Oakland and Los Angeles, have special classes for the deaf child. However, whereas the State School, because of its equipment and complement of teachers can care for all types of deaf children (all must be normal mentally, of course) these special classes follow one set and fixed system and method of instruction. This in itself, for the benefit of the future of all deaf children, would demand that all factors governing a deaf child's life should be carefully and thoroughly studied, without prejudice, and the results of such study should determine which placement is the better for the future.

In the matter of the hard of hearing we have an entirely different problem. It is not the abnormal and scientific mental approach as required with the deaf. With the hard of hearing, generally speaking, the language basis and its interpretation have been made. The speech and hearing centers have had normal reaction and usage to outside stimuli. This problem is answered by lip reading. However, do not take this as indicating that lip reading is the panacea of the hard of hearing. All hard of hearing people cannot learn to read lips. The continued use of acousticon and hearing devices bear this out. Yet, every hard of hearing person should have instruction in lip reading. Some succeed and some do not. A great factor governing the success is the type of mind—analytical or synthetical, the former being better for lip reading success. Then again good vision and good health are factors to be considered.

There is more systematic and concentrated work being done for the deafened (hard of hearing) adult than for the hard of hearing school child. California is doing more constructive work in this field than any other state. At present, Los Angeles and San Francisco endeavor to care for the hard of hearing child in the grades and in the high schools. Greater accomplishment and more attention will be given the hard of hearing child very soon.

More than sixty cities throughout the country have such arrangements for the hard of hearing child.

For the deafened adult, there are evening classes in approximately ninety cities in the United States. Of this number there are thirty-three in California, which is a very good sign of progress made in our

state. The state has a director of this work who is assisted by a Board of Normal Instruction, and everything possible is being done to promote the thought.

Below is the list of cities giving work:

Northern District

Alameda High School	Alameda
Kern County High School	Bakersfield
Berkeley High School	Berkeley
Eureka High School	Eureka
Fresno School	Fresno
Martinez High School	Martinez
Technical High School	Oakland
Sutter Evening High School	Sacramento
High School of Commerce	San Francisco
High School Department of Adult Education	San Jose
San Leandro High School	San Leandro
San Mateo Union High School	San Mateo

Southern District

Alhambra	Monrovia	Santa Monica
Glendale	Pasadena	Santa Barbara
Hollywood	Pomona	San Bernardino
Inglewood	Redondo	Van Nuys
Lakeside	Redlands	Venice
Los Angeles	Riverside	Vista
Long Beach	San Diego	Whittier

Chief of Bureau for Deaf and Deafened: E. A. Stevenson, Berkeley.

Governing Board of Normal Instruction: Miss Coralie N. Kenfield, 619 Shreve Building, San Francisco; Mrs. Theodore Poindexter, 1425 Taylor Street, San Francisco; Miss Lucy Ella Case, 429 First Trust Building, Pasadena.

MONILIA INFECTIONS OF THE SKIN*

By HIRAM E. MILLER, M. D.
San Francisco

THE monilia or yeast organism found in human thrush was isolated by Langenbeck in 1839. It was the first time a fungus was described as being the cause of disease in man. In the next few years the organisms of favus, ringworm, and tinea versicolor were observed. Mycology was a well-founded science for almost half a century before the discoveries of Pasteur and Koch in the field of bacteriology. Mycology, however, has been so overshadowed by bacteriology that it has been almost a forgotten science even until the present day. Considerable progress has been made in the study of mycology in tropical countries. We are just beginning to discover that many fungous infections also occur in our temperate climates.

The term "monilia" is applied to those yeast-like organisms that have budding forms and mycelial threads in tissue and mostly budding forms in culture. Many of the monilia organisms are always saprophytic and others are always parasitic. There are some, however, that are saprophytic at times, but under certain conditions become pathogenic. This point has been emphasized in a recent article in the *National Medical Journal of China*. These investigators were unable to produce experimental monilia infections in the lungs of rabbits unless they had previously traumatized the lungs with small stable emboli. This suggested to them the necessity of some preëxisting pathological process before monilia organisms could cause disease. This same course of events probably takes place in monilia infections of the skin. The tissues may be less resistant due to a disturbed metabolism such as is found in diabetes or the excess perspiration and maceration of tissue in the flexures of stout individuals may be sufficient to permit the development of the disease. Monilia may attack any organ of the human body, the skin being the most frequently involved and the nervous system the most rarely affected. I wish to review some of the common monilia infections of the skin and emphasize the findings in some of them.

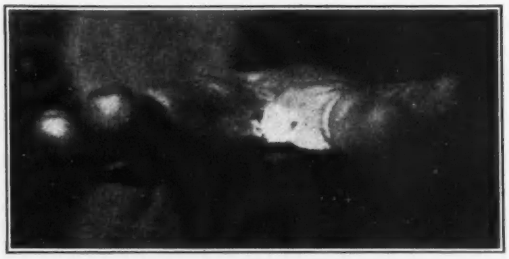

Fig. 1.—Interdigital erosion between fingers due to monilia infection.

CLINICAL MANIFESTATIONS

1. *Thrush* is characterized by the presence of small white flakes or larger patches on the tongue or buccal mucous membrane. It is of rather common occurrence in young infants, but may occur in adults. It does not develop on a normal mucous membrane. Slight abrasions caused by nursing or rough methods of cleansing the mouth may favor the development of the disease. It has also been found in the vagina, on the female breasts, and on the penis. Many different types and species of monilia organisms have been isolated from the lesions of thrush.

2. *Erosio interdigitalis blastomycetica* is a well defined sodden erosion which occurs on the webs of the fingers, particularly between the middle and ring fingers. The lesions are usually bilateral and limited to this particular interspace. Women doing considerable laundry work are most frequently affected. The long-continued soaking of the hands in water seems to predispose the individuals to the development of the disease.

3. *Paronychia* due to monilia organisms have been described in workers in pear canneries and in orange juice establishments. Moisture from constantly having the hands in water predisposes the workers to the infection. The infecting organisms came from the pears and from a type of decay found in some oranges.

4. *Pruritus ani or vulvae* due to monilia organisms is not uncommon. The characteristic intertrigo with fissuring in the depths of the folds is

* From the division of dermatology, University of California Medical School.

*Chairman's address, Dermatology and Syphilology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

generally present. There are usually many small satellite desquamative lesions at the periphery of the intertrigenous areas. There is often an associated vulvovaginitis with a characteristic mottling of the mucous membrane. Positive monilia cultures may be obtained from the vaginal smears and sometimes from the stools. In my experience most of these patients have been rather stout and have been most particular about cleanliness and personal hygiene.

5. *Intertrigenous infections of the toes by monilia* are quite characteristic. All interspaces are usually involved, but unless the toes are separated the lesions are not visible. The skin of the interspaces is macerated just to the edges of the apposing surfaces of the toes. Here it ends abruptly. Vesiculation, as found in the usual ringworm infections of the feet, is not present. The few patients that I have observed with this infection between the toes have been well past middle life, have been overweight, and have had excessive perspiration of the feet.

6. *Inframammary intertrigenous monilia infections* frequently occur and may be quite extensive and severe. There is an erythematous denuded area limited to the apposing surfaces with fissuring in the depths of the folds. There may be a slight crusting due to the exudation of serum. Pin-head to pea-sized desquamating satellite lesions at the periphery of the intertrigenous lesions are usually present. Most of these patients are stout women who perspire freely.

THE MONILIA ORGANISM

Monilia is a yeast-like organism that has budding forms and mycelial threads in tissue and mostly budding forms in culture. It is so closely related to the moulds that it must be considered with them. Those organisms that grow by branching filaments which form a mycelium are called moulds, while those rounded cells that multiply chiefly by budding are called yeasts. The exact

Fig. 2.—Inframammary intertrigo due to monilia infection.

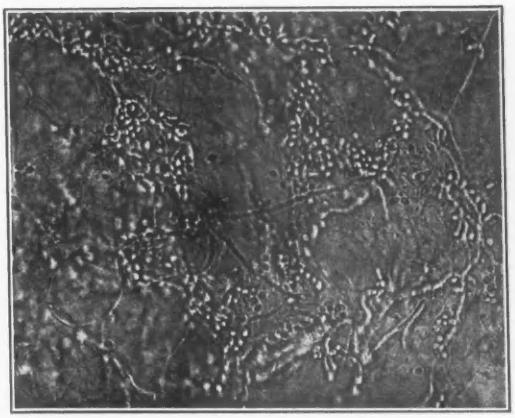

Fig. 3.—Mycelium and spores of monilia. Potassium hydroxid preparation of skin removed from patient shown in Figure 2.

place of monilia in the mycological table has not been determined. There are many species described and the classification is made on the fermentative characteristics of the organism in the sugars. As this changes after a few transplantations, and as monilias with identical fermentative reactions vary enormously in their virulence, it can be seen that a satisfactory classification is impossible at the present time.

When tissue is obtained from the border of the intertrigenous areas and cleared with 10 to 25 per cent potassium hydroxid the organisms can generally be demonstrated. The characteristic spores and mycelial threads are shown in the accompanying photomicrograph. The mycelial elements are considerably finer than those seen in ringworm infections. The spores are generally grouped around the ends of terminal hyphae.

Monilia grows well on dextrose, agar, and Sabouraud's media. The colonies are generally white or yellow in color, but in rare instances may be pink, red, or black. The early colonies are slightly raised and smooth and resemble an ordinary staphylococcus colony. The older colonies are considerably raised and often have an irregular crateriform appearance.

DIAGNOSIS

It is necessary to differentiate monilia infections of the skin from ringworm and intertrigenous eczema. The absence of vesiculation and the limitation of the eruption to the apposing surfaces are of the most importance in ruling out a ringworm infection. An intertrigenous dermatitis should not be classified as an eczema unless there has been considerable mycological study. One must also remember that monilia and other yeast-like organisms belong to the normal flora of the skin and that their mere presence does not necessarily signify that they are the cause of the eruption.

TREATMENT

In undertaking treatment it must be borne in mind that monilia infections do not develop on

normal skin or mucous membrane. Mechanical trauma, malnutrition, excess perspiration, etc., predispose to the infection. Mild parasiticides in conjunction with general hygienic care and strict attention to any underlying cause will generally clear up the condition. Thrush of the mucous membrane in children generally responds to cleansing the mouth with a soda bicarbonate solution or painting it with Berwick's dye (one per cent gentian violet and one per cent brilliant green in 50 per cent alcohol). The interdigital erosions on the hands are quite resistant to all therapy. Whitfield's ointment, iodin, roentgen-ray therapy, radium, etc., have been used in these cases. The paronychial lesions respond to the usual therapy used for mycotic infections in these areas. Roentgen-ray therapy, mild parasiticides, and sometimes surgical removal of the nails will result in cure. The intertrigenous areas between the toes, under the breasts, etc., are probably best treated with potassium permanganate (1-5000) or with Berwick's dye. I have also found 10 per cent silver nitrate to be of use in these infections. In general, ointments are contraindicated and I have not found roentgen ray or ultra-violet light to be of value.

SUMMARY

A review of monilia infections of the skin is given and emphasis is placed on the fact that these organisms do not develop on the normal skin or mucous membrane. Irritation due to trauma, excessive perspiration, malnutrition, or metabolic disease may predispose to the infection.

Many of the eruptions previously classified as intertrigenous eczema are due to a monilia infection. Treatment, to be effective, must be directed against the predisposing factors as well as against the monilia organism.

384 Post Street.

THE TUBED PEDICLE FLAP IN RECONSTRUCTION SURGERY*

REPORT OF CASES

By GEORGE WARREN PIERCE, M. D.
AND
GERALD B. O'CONNOR, M. D.
San Francisco

THE development of the tubed pedicle flap by Sir Harold Gillies of London during the late war was a great step forward in reconstruction surgery, and placed in the armamentarium of the reconstruction surgeon a most useful procedure in planning and completing his work.

TECHNIQUE OF TUBE FLAP FORMATION

As is well known, the tubed pedicle flap is constructed as follows: Two parallel incisions are made, the included tissue is raised and sutured in the form of a tube and the raw areas are then closed beneath the tube. This step leads to numerous advantages in the movement of tissue. There is first a freedom from infection, as all raw areas are closed, and also the blood supply through the pedicle is materially increased. When cut through, after a few weeks a central artery can often be demonstrated throughout the tube. Added to these useful facts is the great advantage of a store of full thickness of skin and subcutaneous tissue which may be transferred to any part of the body, thus enlarging the capacity for the repair of large defects. This full thickness of skin and fat is of far more value than are Thiersch or Reverdin grafts, as the ultimate result will be very near the normal in character, appearance, and function.

* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

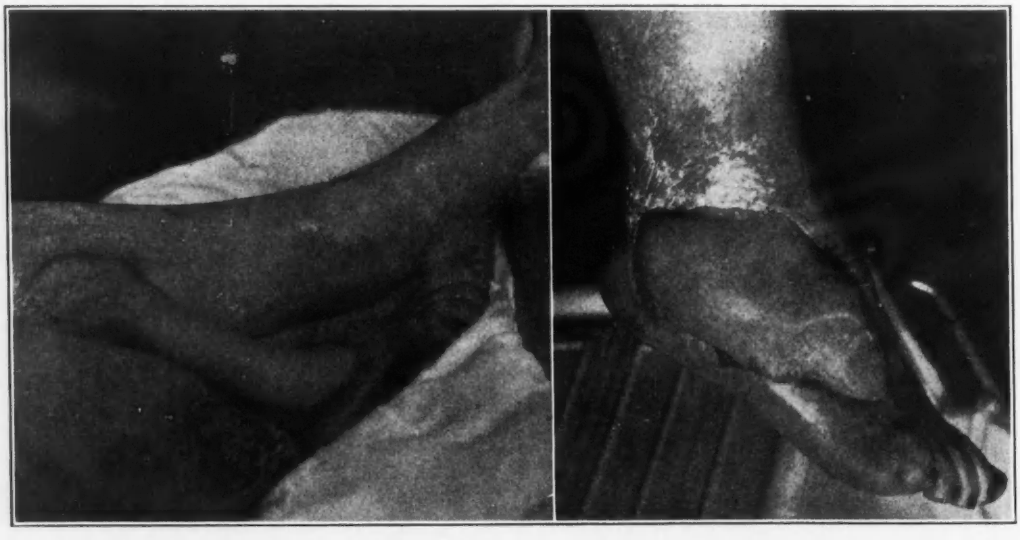

Fig. 1 (a), Case 1.—The tubed pedicle from the abdomen has been transplanted to the thigh of the same side, thence to the calf of the opposite leg, and is here shown transplanted to the injured ankle. Note the heavy scar locking the ankle.

Fig. 1 (b), Case 1.—Shows the tubed pedicle spread out, replacing the scar tissue on the foot.

Fig. 2 (a), Case 2.—The tubed pedicle from the abdomen has been transplanted to the elbow, replacing scar tissue in that region.

Fig. 2 (b), Case 2.—The tubed pedicle has been spread out, replacing the scar on the extensor surface of the arm.

This type of pedicle may be constructed in sizes varying from three or four inches in length and three-eighths to one-half inch in diameter to a length of fourteen to sixteen inches and a diameter of two and a half to three inches. They may be used as a simple direct transplant or as a pedicle bearing a larger flap at one extremity. Larger amounts of tissue may be transplanted which are nourished by two, three, or even four tubed pedicles. These flaps may be stepped up end for end at intervals of about three weeks. The number of steps is apparently unlimited and the texture of the skin and underlying tissues shows little change after a series of steps. If any change is evident it is a slight increase in fibrous tissue in the subcutaneous fat. The best source of large tubed flaps is the abdomen or flank, as in this region considerable skin can be removed without distortion or limitation of function.

IMPORTANT CRITERIA

There are several criteria which should be followed in the construction and management of tubed pedicle flaps. In making the tube, usually some of the subcutaneous fat should be removed, but not too much. If too little fat is taken away, the pedicle will be too tight when sutured and the edema resulting from operative trauma will cause a choking of the blood supply. If too much is taken, sufficient blood supply may not remain to support the vitality of the skin. Blood supply may be further guarded by selection of site for the pedicle, keeping in mind the anatomical distribution of the larger subcutaneous vessels. Care should be used in suturing the angles beneath the ends of the pedicles to the underlying suture line, for this is a point of tension where three suture lines meet. The angle beneath the pedicle may be sutured to the straight side of the raw surface beneath, avoiding this point of low vitality. The after-care of pedicles is of the greatest importance. If white, an insufficient arterial supply is indicated, while a cyanosis means a rich arterial supply and incompetent venous return. If uncared for, the former may result in dry gangrene and the latter in moist gangrene. The remedy in each case is proper gentle massage and frequent warm compresses of normal saline solution of 105 degrees Fahrenheit. Greater heat is apt to blister the pedicles and to favor thrombosis. Massage in the first instance should be afferent and in the second, efferent.

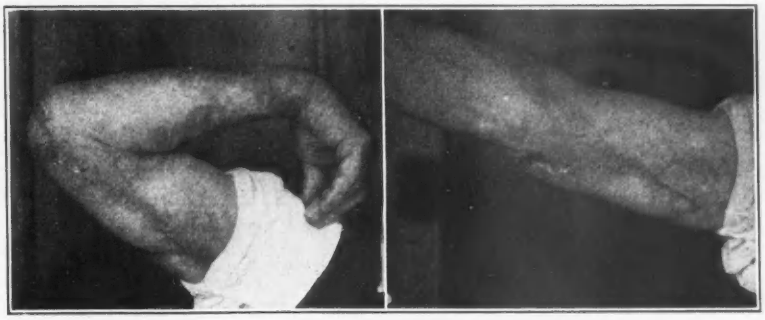

Fig. 2 (c), Case 2.—Flexion of elbow after completion of transplantation.

Fig. 2 (d), Case 2.—Extension of elbow.

ADVANTAGES OF TUBED PEDICLE FLAP

The tubed pedicle flap is of great importance in reconstructive work:

1. Because the possibility of infection is greatly decreased and the scar in the transplanted tissue is minimized.
2. It can be moved with comparative safety to the tissue itself, relatively great distances, and a considerable number of times.
3. The disability and discomfort of the patient is greatly reduced.

The tubed pedicle flap should not be looked on as a panacea for all the difficulties that the plastic surgeon falls heir to, but we do believe that for certain types of reconstruction that we have in it an almost ideal procedure for more perfect and pleasing results.

Fig. 3 (a), Case 3.—Loss of half the external ear from accident. Tubed pedicle made parallel to clavicle has been transplanted upward.

Fig. 3 (b), Case 3.—Tubed pedicle has been transplanted to ear.

Fig. 3 (c), Case 3.—The completed auricle. A small line of healing can be seen on the newly formed lobule.

CASE HISTORIES

Case 1.—This patient was injured May 12, 1926, when he suffered a third-degree burn of the lateral surface of the right foot and ankle. The burn was deep and involved most of the soft tissue of the area affected. Healing was slow and no skin graft was done. He came under my care on October 11, 1928, and presented the following disability: The entire lateral surface of the right ankle and foot was a mass of scar tissue except just anterior to the external malleolus, where was an ulcer four by three centimeters which had never healed since his injury two and a half years before. The foot was held in strong eversion by the contracture of the scar tissue, and what little walking the patient could do with this foot was done on the inner border of the foot. Not more than 10 degrees motion of combined dorsi and plantar flexion was possible in the ankle, and there was no subastragaloid motion. The ulcer had been under constant medical treatment, but seemed to resist all efforts to heal during these two and one-half years. A great variety of chemical agents had been applied to the wound to no avail. There was a moderate edema of the right foot and ankle. There was nothing in the patient's history or physical findings to explain the failure to heal. The man was a vigorous adult weighing 182 pounds and was thirty-three years of age. Wassermann test in the blood was negative. The plan of procedure in this case was to reduce infection in the ulcer as much as possible, skin-graft the ulcer with a Thiersch graft to obtain rapid healing, and then at a later date to replace the scar tissue with full thickness skin and subcutaneous tissue to restore function. Smear and culture from the ulcer had revealed a mixed infection of streptococcus and staphylococcus *Pyogenes aureus*. The patient was put to bed, the leg elevated, and normal saline compresses were applied. No other medication was used. The edema rapidly disappeared and within three or four days epithelialization could be seen progressing. We were more than surprised to see this ulcer completely heal in twenty-two days with this simple non-irritating treatment after it had resisted closure by the use of all the so-called tissue stimulants. This was nothing less than an object lesson that nature should be given every chance to proceed with normal healing without interference, a conclusion which is being reached by a large number of surgeons. A similar experience in a number of cases has convinced us entirely in this matter.

Fig. 4 (a) Fig. 4 (b) Fig. 4 (c) Fig. 4 (d)

Fig. 4 (a), Case 4.—Severe burn of face and nose. Scar over the bridge and sides of the nose has been replaced with Wolfe graft. Tip and alae deficient. A tubed pedicle from the clavicular region has been transplanted to beneath the chin and thence to the cheek.

Fig. 4 (b), Case 4.—Second transplantation of tubed pedicle.

Fig. 4 (c), Case 4.—Third transplantation.

Fig. 4 (d), Case 4.—Final shaping of tubed pedicle to form the tip and alae of the nose.

One month later a large tubed pedicle 12 inches long and 1¾ inches in diameter was made on the lower right abdomen. Three weeks later the flank end of the pedicle was severed from the abdomen and transplanted into the middle of the anterior surface of the right thigh. From thence it was transplanted to the calf of the left leg and then to the right ankle, as shown in Figure 1 (a).

Transplantations were done at intervals of three weeks. In the illustration the scar of the burn can be seen, also the eversion of the foot. The pedicle was finally transplanted entirely to the foot, the scar tissue excised completely and the pedicle spread out and sutured. Healing occurred normally and the patient returned to work two months after the final operation. He walked without limping, and had forty-degree plantar flexion and fifteen-degree dorsi flexion with aproximately one-half of normal subastragaloid motion. The final result is shown in Fig. 1 (b).

* * *

Case 2.—This patient was severely burned in a tunnel explosion and, among other injuries, sustained a deep burn of the extensor surface of the right arm from the elbow to the junction of the upper and middle thirds. The resulting scar limited flexion to 68 degrees, and even partial flexion caused severe pain in the region of the elbow joint. Fig. 2 (a) shows the scar and the first stage of the scar replacement by a tubed pedicle from the right flank. Fig. 2 (b) shows scar entirely replaced by the pedicle, and Fig. 2 (c) and Fig. 2 (d) show the final result with complete return to normal function. There was entire relief from pain.

* * *

Case 3.—This patient was injured when an automobile in which he was riding overturned and he suffered the loss of the left auricle. Repair was done by the use of a small-tubed pedicle from the clavicular region, which admirably supplied the necessary type of tissue. The original condition, together with the first step up of the tubed pedicle, is shown in Fig. 3 (a). The next stage where the pedicle is sutured to the antihelix and blended into the remaining helix is shown in Fig. 3 (b). The final result is shown in Fig. 3 (c). Further uses of the small-tubed pedicle are shown in an article by the author on "Reconstruction of the External Ear," ***Surgery, Gynecology and Obstetrics,*** March 1930, pages 601-605.

* * *

Case 4.—This patient was injured May 27, 1926, when a supposedly empty 110-gallon sulphuric acid drum exploded while he was cutting it with a torch. Goggles he was wearing protected his eyes, but he received second and third degrees burns of the face, nose, neck, and ears. He also suffered the loss of a leg. Subsequent healing was very slow and resulted in marked scarring of the face, with loss of most of the soft tissue of the nose. The nose was covered with a thin, red, shiny epithelium, and the tip and alae were practically destroyed. The scar over the bridge and sides of the nose was replaced with a Wolfe graft of full thickness skin, and the result of this operation is shown in Fig. 4 (a). Unfortunately the pictures of the original condition were not good, but these illustrations show well the damage to the tip and alae.

The problem of restoring the tip and alae was solved by the use of a Gillies type of tubed pedicle graft in a manner which, I believe, has not been used before. The tubed pedicle was made parallel to the clavicle, then transplanted upward to the nose in various stages as shown in Figs. 4 (b) and 4 (c). It was finally shaped as shown in Fig. 4 (d), giving a close approximation to the normal in contour and appearance.

490 Post Street.

SYPHILIS—THE TREATMENT OF WASSERMANN-FAST AND CEREBROSPINAL BY MODERN METHODS*

By James E. Potter, M. D.
San Francisco

Wassermann-Fast Syphilis.—Paul Ehrlich in 1906[1] reasoned that protozoan diseases could not be treated by specific antitoxins, but must be treated by sterilizing the blood stream of the organisms. Attacking spirochetal diseases from this angle led to the discovery and development of salvarsan in 1910. In the course of his experiments, in treating trypanosomiasis with certain specific dyes, he found that if the dosage were too small to completely sterilize the animal of the parasites a race of trypanosomes could be bred which proved permanently fast or resistant to the effects of the drug. Later experiments[1] proved that the same thing will happen in the course of treating acute syphilis, and thus we have cases which are Wassermann-fast.[13]

INTRAVENOUS BISMUTH

Intravenous bismuth was first introduced by Grenet, Drouin, and Richon[16] in 1922, and has many advantages over preparations for intramuscular injections.

The dangers of its use, according to Ritter and Karrenburger,[17] are: (*a*) shock; (*b*) yellow atrophy of the liver; (*c*) weakened serum reactions. If used with caution, however, no untoward results may be expected.

INTRAVENOUS IODIN

After a thorough search of American literature the only reference to the use of intravenous iodin appears in the *Journal of Experimental Medicine*,[3] March 1930, as follows:

> A new medicine in the treatment of syphilis has entered the field in the form of soluble iodin (Burnham's) for intravenous use. However, it is so new that no authentic data can be given as to its therapeutic value.

M. Biach[4] of Vienna states that syphilitics tolerate iodin practically in all instances, even when given intravenously in large doses. In its distribution in the various tissues, the heart, liver, and spleen contain approximately the same percentage of iodin, while the average content in the blood is about six times as high. More is deposited in the suprarenals and ovaries, but most in the thyroid gland. When iodin is introduced into the system, thyroid function is frequently stimulated.

TRYPARSAMID

Tryparsamid has proven to be one of the most useful drugs in the treatment of neurosyphilis and has a wide range of possibilities. Its im-

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* Read before the Butte County Medical Society, Oroville, September 23, 1930 (by invitation), by Lieutenant-Commander James E. Potter, Medical Corps, U. S. Navy.

* Read before the San Francisco County Medical Society, San Francisco, January 6, 1931 (by invitation).

mediate administration, if given slowly, is not followed by any form of reaction. Its principal virtue lies in the fact that following intravenous injection, arsenic appears in the spinal fluid (Fordyce and Myers[15]). However, one should make haste slowly in the use of tryparsamid. Wood and Moore,[5] [2] Solomon and Viets, Pearce and Lillie,[6] have all reported severe visual disturbances following intravenous injections of this drug. An analysis[7] [2] of 1254 cases of neurosyphilis treated with tryparsamid showed that two per cent had permanent visual damage. It is presumed that tryparsamid affects the optic nerve by way of the subvaginal space. As a spirocheticide it is decidedly inferior to neoarsphenamin.

ELEVATION OF BODY TEMPERATURE

Practically every one of the self-limiting pathological conditions is accompanied by a rise in the body temperature. This condition may be either a manifestation of the process of cure, or it may be only a reaction of the tissues as a result of infection. It is worthy of note that in certain classes of pathologic conditions that ordinarily are not self-limiting the rise of temperature occurs only in the terminal stages. The realization of this fact led to the introduction of toxic substances into the body which would create an elevation of temperature. Other modalities, such as baths and electricity, have been used in this connection.

Wagner Von Jauregg[8] first reported the use of malaria in the treatment of general paresis in 1917. It is still much more popular in European than in American clinics. Many adverse reports can be found in the literature. Gonzalo R. Lafora[9] of Madrid (1930) states that mental disturbances following malaria therapy of general paralysis have varying aspects. During the febrile attack, delirium, hallucinations, and paranoid or catatonic conditions are seen. Such reactions are also seen after the fever has subsided. Hallucinations and the paranoid forms would seem apt to follow malarial treatment. In purely tabetic cases, multiple sclerosis, postencephalitic Parkinson syndrome, and epilepsy, these conditions are not so marked; indicating that they depend largely on the diffuse cerebral paralysis and taboparalytic processes, to which the toxinfection of malaria is added. Malaria treatment has been used with caution by surgeons of the United States Navy. Stephenson and Love[10] have reported favorable clinical results following its use. They conclude that elevation of temperature is responsible for the improvement in clinical manifestations. However, the question arises as to the advisability of superimposing one debilitating disease upon another and expecting no deleterious sequelae.

Carpenter and Boak,[11] in the *American Journal of Syphilis,* describe an apparatus and method of heating animals by short radio waves. Twenty-one of a group of twenty-five rabbits infected intratesticularly with *Treponema pallidum* and heated as described in the technique given, failed to develop chancres when treatments were begun four, five, and seven days after injection. Five of these twenty-one rabbits developed nodules in their testes during the treatment, but by intensifying the exposure the lesions disappeared. One treated rabbit developed a chancre, while the testes of the second became enlarged, edematous and indurated. By increasing the duration of the heatings they became normal. One rabbit died from overheating and one died from intercurrent infection. Eighteen of twenty controlled rabbits similarly infected developed typical lesions of experimental syphilis; two died three days after infection, of peritonitis.

In March 1930, therapeutic fever produced by diathermy and high frequency currents was introduced by King and Cocke.[12] With special reference to its application in the treatment of general paralysis, the method used by King and Cocke has been followed very closely by us.

TREATMENT OF WASSERMANN-FAST CASES

A careful history of the patient's previous medication is taken. Following Ehrlich's[13] observations of the cause of Wassermann-fast cases, naturally a spirocheticide which has not previously been used is selected. Usually all cases will give a history of having had an intensive course of arsenical treatment. For instance, if neoarsphenamin and mercury have been employed, our drugs of choice would be intravenous bismuth and iodin. The following routine has been adopted, which has given excellent results: Three injections of one gram sodium thiosulphate are given intravenously at twenty-four hour intervals. This drug is used in an attempt to dislodge or absorb any arsenic that may be stored, and prepare the system to receive the attack against the spirochetes from a different angle. Nonmetallic sulphur in the form of sodium thiosulphate[14] precipitates the whole group of metals, *i. e.,* arsenic, lead, mercury zinc, copper, and bismuth. In doses up to two grams intravenously the chemical action is rapid, converting metals into insoluble sulphids which are nontoxic.

DIATHERMY

After a thorough preparation, the patient receives five cubic centimeters of Loesser's intravenous bismuth, which is followed by a diathermy treatment* described below:

A rubber sheet, approximately four by seven feet, and having a rubber tube vulcanized in its center, is placed on an ordinary hospital bed (no other insulation is needed). The tube is led to a bottle placed beneath the bed as a drain for perspiration. The patient is stripped, placed on the rubber sheet, and two electrodes (eight by fourteen inches with one side insulated with one-fourth inch sponge rubber) are placed under the buttocks and shoulder blades. Two similar electrodes are placed over the abdomen and chest. The two lower electrodes are connected to one

* Through the courtesy of the manufacturers and distributors of physiotherapy products, the writer had the use of six diathermy machines for a period of four months.

lead of a high frequency diathermy machine and the two upper electrodes are attached to the other lead. A rubber sheet and two heavy blankets are then placed over the patient and tucked in snugly, leaving only the face exposed. The current is turned on with the milliampere reading at 2000 and gradually increased until the reading reaches 4500 to 5000 milliamperes.

Temperature and pulse rate are taken every fifteen minutes. It usually requires about one hour, with a gradual increase, before it is safe to expose the patient to such a high frequency. Generally, after the lapse of an hour and one-half to two hours, the patient has attained a temperature of 102 to 103 degrees Fahrenheit. Irritable subjects are given a hypodermic of one-quarter grain of morphin sulphate early in the procedure. This is generally conducive to drowsiness and sleep.

For the sake of safety, the pulse rate should not be allowed to exceed 130 beats to a minute. Any irregularity of the pulse, air hunger, extreme nervousness, sudden dilatation of the pupils, and absence of sweating, are the first signs of danger. Blood pressure readings are inconvenient to make and are unnecessary because the other symptoms will always precede an alarming fall in blood pressure.

In treating Wassermann-fast cases we rarely create a therapeutic temperature higher than 103 degrees Fahrenheit, and usually limit them to two-hour intervals of diathermy exposure.

Forty-eight hours later, ten cubic centimeters of Burnham's intravenous iodin is given, which is also followed by a diathermy treatment. The first course consists of ten or twelve of the above alternating treatments, according to the capacity of the patient to assimilate the bismuth, iodin, and diathermy treatments, respectively. Serological readings at the end of this treatment always shows a decided improvement.

CEREBROSPINAL AND NEUROSYPHILIS

So much has been written and the disease has been attacked from so many angles that it would be impractical to quote a consensus of opinion. Therapy becomes a distinctly different problem during later stages of the infection, when spirochetes have been localized in parts of the body that are therapeutically inaccessible to the ordinary spirocheticidal agent. When the factor of resistance comes into play and the course of the disease is determined largely by the resistance of the individual, therapeutic fever is of proven value. Treatment becomes a question of reaching inaccessible foci of infection, and this might be done either by the use of spirocheticidal agents or by the use of agents whose primary function is to reinforce the resistance of the patient, or, better still, by the use of substances that combine both of these qualities of action.

After many experiments with various drugs and methods, the following routine has been adopted:

A careful physical examination is made, including blood and spinal Kahn tests, cell count, colloidal gold curve, globulin, blood pressure, and an attempt to estimate the physical resistance of the patient. The field of vision of each patient is taken and recorded. The patient is then given three grams of tryparsamid intravenously and then diathermy treatment is administered as described above, except that the therapeutic temperature is elevated to 104 degrees Fahrenheit and kept there for a period of two hours, which makes the treatment continue from three and one-half to four hours. Forty-eight hours later, five cubic centimeters of Loesser's bismuth is given intravenously, which is followed by another therapeutic fever treatment. Forty-eight hours later, ten cubic centimeters of Burnham's iodin is injected intravenously, which is also followed by a therapeutic fever treatment. This same routine is continued for four weeks or longer, unless contraindicated. The field of vision test is made prior to each injection of tryparsamid. If there is an indication of a contraction of the field of vision, tryparsamid should be discontinued. Any simple clinical test for the field of vision will suffice and tryparsamid can be discontinued before permanent damage has resulted.

RESULTS OF TREATMENT

A total of ninety-three patients were treated, twenty of which gave a positive spinal Kahn test and are classed as cerebrospinal; the remaining seventy-three were Wassermann- or Kahn-fast cases.

Seventy-three patients were treated (Wassermann-fast). Thirty-three gave a four plus serum reaction before treatment was started, and twenty of these gave a negative Kahn blood and spinal after the treatment was completed. The remaining thirteen gave a two plus Kahn after receiving the average number of treatments. Twenty-nine patients showed a three plus Kahn before treatment started, and a negative Kahn blood and spinal after the treatment was completed. Eleven patients showed a two plus blood Kahn before the treatment was started, and the blood Kahn was negative after treatment was completed.

Of the twenty cerebrospinal patients treated, one had a severe ocular disturbance and did not complete the treatment. Five exhibited mild visual disturbances, but not of sufficient severity to warrant discontinuing tryparsamid treatment. The only clinical manifestation of the cerebrospinal patients was a contraction of the field of vision without any apparent damage to the optic nerve. One of this series is a semi-invalid (treatment started after the development of hemi-

TABLE 1.—*Treatment Chart*

Type of Case		Blood Kahn		Spinal Fluid Kahn		Pandy's Test		Cell Count		Number of Treatments				Results	
		Before Treat.	After Treat.	Before Treat.	After Treat.	Before Treat.	After Treat.	Before Treat.	After Treat.	Therapeutic Fever	Trypars-amid	Iodin	Bismuth	Clinical Manifestations	Visual Disturbances
Cerebro-spinal Syphilis															
Case Numbers	201	2 plus	Neg.	4 plus	Negative	4 plus	1 plus	65	10	15	7	8	6	D. A., S. I.	Mild
	98	Neg.	Neg.	2 plus	Negative	2 plus	Neg.	222	7	12	6	9	8	D. A., S. I.	None
	1007	3 plus	Neg.	4 plus	1 plus	4 plus	1 plus	72	15	14	7	8	9	Some Imp.	Mild
	909	2 plus	Neg.	3 plus	Negative	4 plus	1 plus	32	11	11	8	8	8	D. A., S. I.	Mild
	1101	Neg.	Neg.	4 plus	2 plus	4 plus	2 plus	48	20	16	8	10	8	Some Imp.	None
	106	Neg.	Neg.	3 plus	Negative	2 plus	Neg.	16	9	12	6	7	8	Much Imp.	None
	102	4 plus	Neg.	4 plus	2 plus	4 plus	1 plus	50	15	16	8	8	8	D. A., S. I.	None
	501	Neg.	Neg.	2 plus	Negative	2 plus	Neg.	16	7	8	4	9	8	Some Imp.	None
	2015	3 plus	1 plus	2 plus	2 plus	1 plus	1 plus	19	5	10	5	8	10	D. A., S. I.	Severe
	2016	Neg.	Neg.	2 plus	Negative	1 plus	Neg.	10	Not made	16	8	8	2	Did not finish	None
	2231	2 plus	Not made	3 plus	Not made	3 plus	Not made	22	7	5	3	2	7	Some Imp.	Mild
	150	Neg.	Neg.	3 plus	1 plus	4 plus	Neg.	36	5	15	9	7	7	Some Imp.	None
	113	2 plus	Neg.	4 plus	Negative	3 plus	1 plus	20	10	15	9	15	12	Some Imp.	None
	1107	Neg.	Neg.	2 plus	1 plus	3 plus	Neg.	60	5	16	8	7	9	D. A., S. I.	Mild
	100	3 plus	Neg.	4 plus	Negative	4 plus	2 plus	30	15	14	10	9	9	D. A., S. I.	None
	2099	Neg.	Neg.	3 plus	Negative	4 plus	2 plus	42	25	18	10	10	8	Some Imp.	None
	1118	2 plus	Neg.	4 plus	2 plus	4 plus	1 plus	65	10	17	11	9	15	Some Imp.	None
	1119	4 plus	Neg.	3 plus	Negative	2 plus	Neg.	32	5	15	12	8	9	D. A., S. I.	None
	99	Neg.	Neg.	2 plus	Negative	3 plus	2 plus	20	7	8	12	3	11	Some Imp.	None
	282	1 plus	Neg.	3 plus	1 plus	2 plus	2 plus	19		10	10	7			
Individual Cases															
Kahn Fast Cases										12		16	14	Much Imp.	.....
										12		16	14	Much Imp.	.....
								5		Av. 14		Av. 18	Av. 16	Much Imp.	.....
								6 - 7		Av. 11		Av. 16	Av. 16	Much Imp.	.....
Case Numbers	20	4 plus	Neg.	Negative	.....	Neg.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	13	4 plus	2 plus	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	29	3 plus	Neg.	Negative	.....	Neg.	.....	.....	.....	.....	.....	.....	.....	.....	.....
	11	2 plus	Neg.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Under Clinical Manifestations use: D. A., Disease Arrested; I, Improved; N. I., Not Improved; S. I., Slight Improvement; and Dis. Discontinued.
Under Visual Disturbances use: Some, None or Mild as the case may require.
Note: Kahn positive spinal cases are classified as cerebrospinal Syphilis.

plegia, motor asphasia, and mental disturbances); there has been a remarkable improvement in his general health, as well as his mental activity and optimistic attitude. His colloidal gold curve has changed from tabetic to a luetic. He is able to walk, dress himself, and come unassisted to the naval station for his treatments. In twelve patients the disease has apparently been arrested and they have resumed their former occupations and earning capacity. All patients treated were ambulatory. It has not been necessary to hospitalize any patient as a result of treatment. Two patients have been discharged from the naval service and no further observations were available.

This series may seem comparatively small. However, each patient referred to represents a special case in which the ordinary methods of treatment had not proven satisfactory. The improvement in clinical manifestations and serological reactions, together with the change from a pessimistic to an optimistic mental attitude, is typical of every patient who completed a full course of treatment. Having had an unusual opportunity to study syphilis in many of its phases, the writer has never used, nor observed, a method so uniformly satisfactory in the treatment of tertiary lues.

CONCLUSIONS

1. If given slowly, with a small bore needle, bismuth and iodin can be administered intravenously with safety.

2. Tryparsamid can be administered with safety if frequent ocular examinations are made. Its

selective action on nervous tissues renders it more useful in the treatment of cerebrospinal syphilis than other arsenical preparations.

3. Wassermann-fast patients which have been resistant to the usual methods of treatment have shown a marked improvement under the combined treatment of intravenous bismuth and iodin, in conjunction with diathermy.

4. Therapeutic fever created by diathermy is considered superior to malaria treatment in that the fever can be controlled. No serious sequelae have followed its use in selected cases.

5. The combined treatment of tryparsamid, iodin and bismuth intravenously, in conjunction with therapeutic fever created by diathermy, has produced remarkable results. Physical improvement and mental activity have given these patients an optimistic outlook on life and has helped to transform them from potential public charges to useful citizens.

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VISUAL REQUIREMENTS FOR AUTOMOBILE DRIVERS

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THE ever-increasing number of automobile accidents in this country and others has attracted the attention of workers in all fields who have studied the problem with the hope of being able to offer suggestions for its reduction. Among those responsible for the regulations affecting automobile drivers should be the oculists, as good vision is a particularly necessary quality for the proper conduction of a motor-driven vehicle.

While it is true that factors such as fatigue, the emotional make-up of an individual, his state of mind, and the condition of the weather are of great importance in the causation of accidents, it would seem that under otherwise similar conditions a person with good vision would be less likely to have an accident than one not possessing it. Of course, the argument has been advanced that a person who is afflicted with poor vision is made more cautious by the knowledge of his shortcomings, but we who practice medicine and who too often see people eat food which they know will make them ill, are not tempted to believe that the care exercised by an unfit driver would offset the danger caused by the defect. To most oculists the obvious conclusion is that regulation of automobile drivers with regard to their visual acuity would be desirable, but the manner in which to determine this is difficult to decide. Germany and certain other countries have a compulsory medical examination, which would have to be repeated every few years, and therefore would hardly be practicable in this country on account of the great number of drivers.

REPLIES TO A STATE QUESTIONNAIRE

A letter was sent to each state motor vehicle department this year by the writer to ascertain just what steps had already been taken to work out this problem in the United States. Answers were received from forty-five states. Of this number the following thirty-three had no visual requirements for nonprofessional drivers: Arizona, Arkansas, Colorado, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Mexico, Ohio, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Utah, Virginia, Washington, Wisconsin, and Wyoming.

Visual Acuity.—The state of Delaware has the most stringent requirement of a visual acuity of 20/30 in both eyes, or 20/20 in one eye. Vermont and Pennsylvania both demand 20/70 with both eyes, while Connecticut asks 20/70 in each eye, and Rhode Island 20/70 in one eye. New Jersey requires 20/50 in each eye, while California only requires 20/50 with both eyes. The attempt

was first made in California to demand 20/30 with both eyes but so many drivers were thus excluded that the limit was lowered to 20/50. In New York a driver must have 20/40 vision with both eyes together. In Washington, D. C., the officials merely stated that acuity and color vision are tested, without giving details. In West Virginia the applicant is only asked if his sight is good.

Visual Fields.—We meet the first mention of fields in the requirement of Massachusetts and Maryland. The former demands 20/70 vision with both eyes, a 120-degree field, and recognition of red, green, and yellow colors. Maryland asks 20/70 vision in each eye, or if one has less than 20/70, the other must have 20/40. A one-eyed individual may drive if he has 20/30 vision and has his car equipped with suitable mirrors. California is also contemplating the introduction of a visual field test.

A digression is made here to quote verbatim from the letter from the Maryand authorities in order to point out the necessity for oculists to take an interest in this work. It runs as follows: "Each rejected applicant *must* go to an *optometrist* of his own choosing." The italics are the writer's, but the quotation is exact. No doubt the expression "optometrist" was meant to include "oculists," but our state officials should be informed as to the limitations of that term.

EUROPEAN STANDARDS

This problem of the visual examination of automobile drivers was discussed at the Thirteenth International Congress of Ophthalmology at Amsterdam. Professor Weekers of Liege presented a set of requirements which have been more or less approved by those interested in the subject and which seem to be quite reasonable. These were as follows:

1. Visual acuity, after correction, of at least 20/40 in one eye, and 20/200 in the other. If a person blind in one eye has been so for at least one year and has a visual acuity of 20/25 in the other he is acceptable.
2. Normal visual field in one eye.
3. No diplopia.
4. No marked diminution in light sense.

I should personally be in favor of making the lower limit of the better eye 20/50, where the field of vision is normal. Otherwise, these figures as presented by Weekers seem entirely adequate.

It is quite obvious that a normal or nearly normal field is quite important in the conduction of an automobile, and the examination of the light sense cannot be omitted if one wishes to reduce the accidents occurring after nightfall. A hemeralopic individual is a dangerous driver at night and may not realize himself what his condition is.

A one-eyed individual should be capable of driving after he has become accustomed to his defect, provided he has normal vision and field in his single eye. Weekers reports four accidents involving one-eyed individuals in his locality and himself is not in favor of licensing them, but states that the majority of opinion is against him.

PROPOSED PLAN FOR EXAMINATIONS

The plan proposed by several workers in this field, including Weekers and Patry, to put these requirements into effect is one which could be applied in this country.

When a driver applies for a license, he is given a copy of the visual requirements. I would also suggest that he have access at this time to a plainly marked test chart so that he could test his own visual acuity. Now, if he so desires, he can go to his oculist and assure himself that he meets these requirements. Whether he does this or not he must sign an application, stating that he believes that he meets the visual requirements as outlined. He agrees to submit to a medical examination if he is involved in an accident. If at this time he is found to be lacking in any of the requirements, he is to lose his license to drive. He thus also lays himself open to civil suit in admitting his defect. Patry would only have him lose his license if he were responsible for the accident. But it would be simpler to revoke the license of any defective individual even involved in an accident, as the responsibility is often difficult to place.

A clause in the application favored by Patry permits the applicant to drive even though he knows he does not meet the requirements, and this cautions him to be careful as he will lose his license if involved in an accident. If the requirements are as low as 20/50 in the poorer eye, I do not think it advisable to encourage those who cannot meet them to drive, even if they use extreme care. I think rather it should be impressed upon those not meeting the requirements that they should not drive, and the legal penalty for one found involved in and responsible for an accident who cannot pass the requirements should be a loss of his license to drive as a minimum penalty, with a maximum penalty of a jail sentence. Otherwise many drivers not meeting the requirements would take a chance.

The fact that the oculist would not have to sign a paper to get his patient a license would prevent him from being imposed upon to falsely certify as to drivers' visions, particularly of drivers who were his friends. He could tell them the truth as to whether they met the requirements or not, and the responsibility of their driving would then rest entirely upon their own shoulders. And that is where it rightfully belongs.

The medical requirements other than ocular could be arranged in like manner. The placing of the responsibility for knowing his condition upon the driver's shoulders would tend to make him more careful. Should a driver not meeting the requirements attempt to drive anyhow, he would be doubly careful, as the loss of a driver's permit is a serious matter in this day of automobiles.

SUMMARY

From a survey of the figures obtained from forty-five of these United States one can readily

see that there is much room for improvement in the system now used, and that there is a crying need for some uniform visual requirements for drivers of automobiles. The writer would urge the adoption of Professor Weekers' suggestions, modified to a lower limit of 20/50 in the better eye, with a type of enforcement placing the responsibility for knowing his eligibility upon the driver himself.

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GONORRHEA IN THE FEMALE*

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Discussion *by H. G. Mehrtens, M. D., San Francisco; William Henry Gilbert, M. D., Los Angeles; R. Glenn Craig, M. D., San Francisco.*

THE treatment of gonorrhea in the female is assuming a far more dignified place in the interest of the gynecologist than was formerly the case. With the pendulum swinging more and more toward conservatism, the major destructive procedures of the past are being replaced by measures which will preserve the generative organs.

The problem of gonorrhea is an old one, but nevertheless of great importance, involving as it does, the generative functions and threatening the future health of the individual. The disease is the greatest cause of sterility and in the past has been responsible for most of the pelvic surgery in women. There is no doubt that the present treatment of gonorrhea in women is far too radical, and it is time that less destructive procedures be instituted even by those of us who consider ourselves conservative.

SOME STATE AND CITY METHODS

Statistics compiled from the records of the California State Board of Health, for the past nine years, show an average decline in the relative number of cases reported, considering the increase in population. However, the state board figures do not represent the total number of cases of gonorrhea, because 95 per cent of those reported come from the free clinics in California cities. The figures, however, indicate a decline in the incidence of the disease.

If every case of gonorrhea were reported by private physicians, figures would be obtained which would increase our knowledge in regard to the incidence of the disease, indicate spots of increased prevalence in certain sec' ns as well as greatly facilitate the working out of methods in prevention and control.

In the regulations of the California State Board of Health for the prevention of venereal disease, as adopted on October 6, 1917, Rule 1, Note 3, states:

> Any person in attendance on a case of syphilis or gonococcus infection who fails to report the case promptly to the local health officer is guilty of a misdemeanor, punishable by a fine of not less than $25 nor more than $500, or by imprisonment for a term of not more than ninety days, or by both such fine and imprisonment.

The diagnosis of these cases must be verified by smear or serological tests made by a reliable laboratory.

In San Francisco the handling of infectious cases by the city authorities consists in arresting prostitutes—clandestine or otherwise—who are caught plying their trade, or upon the complaint of some individual who claimed to have acquired venereal disease from one such. These individuals are examined at the city jail by a physician and if found to be infected they are sent to the locked ward at San Francisco Hospital and are there treated until three negative smears are returned from the city laboratory. The approximate yearly turnover of patients is two hundred inmates and their average length of time in the hospital is about six weeks. Practically all of the present methods of treatment are employed, but the general trend is toward conservatism.

In certain of our western cities, routine examinations are made of employees of establishments such as restaurants and bakeries, and forced treatment is instituted on employees who have venereal diseases.

PATHOLOGY

The pathology of gonorrhea in women shows itself in an infection of the glands of the cervix, in an infection of the urethra, and less frequently in an infection of the Bartholin's glands. From the cervix the infection travels internally, involving the endometrium, fallopian tubes, and ovaries. In addition to these organs, the cellular tissue, the so-called parametrial, pararectal, and paravesicle tissues are invaded by the gonococcus. There is a marked tendency for the gonococcus to disappear from the tissues spontaneously, and this tendency is more marked in the tissues of the pelvis than from the glandular structures of the cervix and vulva. It is the infection persisting for long periods of time in the urethra and cervix which keeps the internal infection going with the well-known flare-ups during menstruation.

Curtis [1] has shown the importance of reinfection in the cured cervix as a very important element of these so-called flare-ups. Curtis has proven beyond any doubt that the infection is an ascending one from the cervix through the uterine cavity and into the fallopian tubes. He has shown by his ground specimens that gonorrhea can be found in the uterine mucosa in spite of the fact that this is a nonmotile organism which finds its way over a ciliated field against the cilia current.

The writer believes, however, that the pathway over the endometrium is not the only method of access which the gonococcus has to the cellular structures of the pelvic organs. When you consider the rich lymphatic supply of the whole uterine wall and cervix, the path by which most

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

infections of our body gain access, the tenderness of the sacro-uterine condensation and the speed with which some infections penetrate, it seems reasonable to think that at least some of the infection travels internally through the lymphatics.

TREATMENT

In the treatment of gonorrhea in the female, several things must be taken into consideration. In the first place, the acute or so-called "hot" case with internal extension, no matter how extensive, must be treated by rest in bed and measures designed merely for the comfort of the patient. As the acute inflammatory process subsides, a more careful examination can be done; the foci, that is, the glandular structures of the vulva and cervix may be investigated and plans formulated for further treatment. If tubal abscesses form, they may be drained, usually by posterior colpotomy. If the patient has had previous pelvic surgery, conditions are sometimes present which prevent the tubal abscess from pointing into the culdesac, making it difficult to drain from below. In this case it is a simple thing to drain the abscess through oblique incisions through the abdominal wall and from thence through the areolar tissue of the broad ligaments, without soiling the peritoneum.

When the acute inflammatory reaction shows further evidence of subsidence, by relatively normal temperature, lack of temperature reaction following examination, delayed sedimentation time or marked reduction in leukocytosis, treatment designed at destroying the external foci may be investigated.

Treatment of the Cervix Uteri.—The method of the treatment of the cervix may be either destructive or otherwise. The destructive methods consist in cauterization of the endocervical glands, in radiation, or the enucleation operation of Sturmdorf. In the nondestructive treatment, we have local applications of drugs, the injection of germicidal dyes beneath the cervical mucosa, and endocervical diathermy.

In regard to the *cautery*, there seems to be a wide diversion of opinion as to just how it is to be used, and an examination of the literature would indicate that there is some confusion as to just what is to be accomplished. The rationale of cautery use lies entirely in its ability to destroy the glandular lining of the cervix. If this can be done completely, there is every reason to expect a complete cure of the primary focus which acts as a feeder for the internal extension of the inflammatory disease. It is not necessary to dilate the cervix to do this procedure, if the cautery knife is not too bulky. A cautery should be chosen with a point presumably the ordinary length of the cervical canal. It should be capable of high heat on its point and have a cool shank. It should be inserted in the cervical canal completely cold, as this facilitates the placing of the instrument without searing and sticking before complete entry. When the knife is in proper position in the canal, the high heat should be turned on immediately. Then, without moving the cautery, pressure is made in the direction of several radii for such a length of time (time must be learned from individual experience) that the destruction will reach a depth at least equal to that of the mucosa, this depth usually varying from two to five millimeters. The cautery is quickly removed, and in the withdrawal radial stripes are made on the vaginal portion of the cervix if there is marked eversion or cystic degeneration.

The operative procedure just described should be done in a hospital and under anesthesia. Light cauterizations are of no value in the treatment of infections of the endocervical glands for multiple cauterizations are not desirable. Operations such as that in which the cervix is split transversely, the two lips everted and the exposed canal cauterized, offer no improvement over the above described method. The deformity of the cervix in patients who are thus treated, and who are not cured of their infections, gives great mechanical difficulty in later treatment.

The after-treatment of a cauterization operation is rest in bed, the patient being sent home on the third day if the temperature is normal. She is advised to use a cleansing daily douche and is told to avoid exercise. She is also warned that her discharge will probably become much worse and very foul for a time, and that when the slough comes away there will be bleeding.

A *Sturmdorf trachelоplasty* may be done with the usual technique and the entire area which contains infected glands may be removed. This operation has the weakness inherent to all operations designed to eradicate diseased areas of microscopic dimensions. The plastic results of this operation are beautiful, but if future pregnancy is a consideration it had best not be done; because the enucleation usually must be done so deeply that there is too much interference with the neuromuscular activity of the uterus. Future pregnancies will be prevented in such patients or will terminate early in too large a percentage of cases. The technique of this operation can be applied to amputation with excellent anatomical results, and where enucleation might be done it would perhaps be better that amputation be done, using the same technique at a higher level.

In the treatment of endocervical infection by *radium*, the technique is quite simple and the results are probably as good as from cauterization procedures. About four years ago the writer compiled the reports on a series of fifty-seven patients having endocervicitis and of these, 10.5 per cent had cervical smears positive for gonococcus. Each patient received about 200 milligrams of practically unscreened radium in the cervix. This treatment was carried out in the out-patient clinic, and the results showed a complete cure or improvement in 57.2 per cent of patients. No stenosis following the use of radium has been noted by the writer in a period of four years. Patients suffered no pain. In our pro-

cedure, the capsule containing the radium is an integral part of one branch of a double tenaculum. The tenaculum was inserted in the cervix by sight so the capsule lay in the canal and, when the tenaculum was closed, the cervical lip was caught in the teeth of the tenaculum and the patient remained in a recumbent position for the desired length of time. We used 100 milligrams of radium, and it was usually left in place two hours. Lately this dosage has been increased and a rubber capsule screen has been added with the idea of inducing a temporary amenorrhea in patients who show a monthly flare-up.

The idea was brought out by Polak,[2] who is using temporary x-ray castration in the treatment of subacute adnexal inflammation.

The above methods are destructive and as such cannot be termed as ideal.

In the *nondestructive methods,* local applications will be dismissed as of no proved value. Sections taken from cervices which have been removed after a liberal application of practically every drug have shown that the treatment is ineffective.

In the injection of mercurochrome the writer has had no experience, but following the technique of Helvestine and Farmer [3] the mucosa of cervices have been infiltrated after total removal. To properly inject the entire area is quite difficult.

Under treatment by endocervical diathermy, recent infections of the cervix by the gonococcus disappear quite miraculously at times, especially in patients who do not develop the severe uterine cramps. If powerful uterine cramps are initiated, there is considerable danger of flare-up of internal inflammatory reaction following this treatment. It is important that the physician remember that the heat registered by the thermometer in the thermophore relates only to the tissue immediately adjacent to the tip of the instrument, being quickly dissipated by the circulation.

Infections of the urethra may be cleared up easily with the Corbus thermophore or they may be destroyed with the fine eye cautery, used through the Moore skeneoscope. The glands may occur in more than a single pair and these must be located and destroyed. Here, as in the cervix, if the gonococcus is killed in the meatus by diathermy, it is probable that the adjacent field is infected, so that reinfection is probable unless the parts are kept clean.

Infected Bartholin's glands can be treated by excision of the glands without rupture, the incision being made in the labia and not in the vestibule. The glandular orifice should be cauterized with a fine cautery.

The above described methods of dealing with gonococcus infection will give a high percentage of local cures. With a local cure established, the internal pathology will very often completely disappear. Poorest results are found in patients who have had previous pelvic laparotomies of the so-called conservative type.

Turning now to newer and more conservative measures in the treatment of gonorrheal inflammatory disease, favorable reference may be made to the so-called protein shock or nonspecific protein therapy. It is not unusual to see large inflammatory masses disappear when this therapy is administered in the hospital. The results in our patients were about the same, no matter what protein was used and seemed somewhat proportional to the general reaction or the height of fever caused by the injection. Milk can be used as it is cheap and gives effective results. The effects of protein therapy seem to be more marked on the internal pathology than on the external, so that the protein shock therapy may be used in combination with previously outlined measures.

Therapeutic Fever Treatment.—Following Mehrten's [4] work on high fevers produced by baths, the possibility of using some such method in the treatment of gonorrhea suggested itself. Mehrten's technique was used in nineteen patients, all of whom had positive smears before treatment or were unmistakably gonorrheal. A number of the patients were those recovering from their first attack of gonorrhea.

Mehrten's method is definitely a hospital treatment. The patients are immersed in a complete bath, usually at a temperature of between 108 and 110 degrees Fahrenheit. Blood pressure is taken before treatment. No hypotension patients have been immersed so far. The temperature of the bath water and the patient's pulse rate and temperature are taken and recorded every five minutes. The patient may have plenty of hot water to drink during the bath and for those who develop headaches an ice-cap is placed on the head. The temperature rise as recorded by mouth thermometer is rapid, and in reasonably coöperative patients the temperature reaches about 107 degrees Fahrenheit during the first thirty minutes. The bath is continued, holding the patient's temperature as constant as possible for one hour as the total bath time. After removal from the tub the patient is wrapped in woolen blankets for another hour. The temperature subsides slowly if care is taken in the wrapping.

No other treatment is given these patients at any time during their disease, except that before each bath the vagina and vulva are thoroughly scrubbed with a green soap solution. The number of baths to be given each patient and the interval between baths is still a question but, naturally, must vary with each individual treated.

Patients with acute gonorrhea and extensive tubal involvement have been given a greater number of baths, have been kept in the hospital longer, and have had their baths given every alternate day.

Our experimental use of the method of therapeutic fever induced by the water bath began in August 1929 in the Stanford women's clinic. The total number of patients treated was nineteen. The highest temperature reached in any bath was 108.2 degrees Fahrenheit. The age of these patients varied between sixteen and fifty-four years, the average age being twenty-five. The number of baths given varied from two to seven, the average being three baths. The average stay in the hospital was four days. Four of these nineteen patients were pregnant. One patient who had been bleeding before any treatment was started aborted two weeks after completion

of the baths. One patient had a premature delivery of a stillborn fetus, three months after her bath treatment.

The average duration of the disease in this series of patients varied between one month and seven years, but most were recent infections, rarely running over three months' duration.

In twelve patients with internal pelvic inflammatory disease, six showed a moderate adnexal infection and six gave evidence of marked internal involvement. In one patient an abscess was definitely made out in the ovarian region.

In this series of patients the smears began to come back negative following the second baths, and several cervical smears became positive again during the following week. After a period of almost three months, seventeen patients were clinically and bacteriologically negative for gonorrhea of the external genitalia and showed marked improvement of the internal inflammatory disease. In the two remaining patients one could not be located; and one had a positive smear one month after treatment, which we believe was a reinfection.

One patient whose vagina and vulva were completely covered by condylomata accuminata, was completely cured of both her gonorrhea and the warts. Green-soap scrubbing undoubtedly contributed to this result.

Another patient exhibited joint fixation of the wrist, and her wrist movement increased after three baths to the extent of thirty degrees posteriorly and forty-five degrees anteriorly with almost complete flexion of this joint at the end of two and a half months.

CONCLUSIONS

The observations above presented lead us to believe that therapeutic fever therapy, keeping the external genitalia carefully cleansed, and rest in bed offer much in the way of treatment for gonorrheal pelvic inflammatory disease. The danger of reinfection which Curtis has pointed out is, in patients who are treated in this manner, much more likely to occur than in destructive forms of treatment. It is probable that in certain types of patients, namely, prostitutes, it would be better to destroy the external foci of infection and use the therapeutic fevers for the treatment of the internal pathology alone. The writer knows no other form of treatment of gonorrheal pelvic inflammatory disease which is so effective at the present time, and certainly we can now treat, conservatively, patients who have already been subjected to the so-called conservative surgical operations which have resisted our treatment in the past.*

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* The writer wishes to thank Dr. Paul Hoffman and Miss M. C. Baldwin for supervising the baths and for recording much of the data used in this report.

DISCUSSION

H. G. Mehrtens, M. D. (Stanford University Hospital, San Francisco).—Doctor Pettit's work on gonorrhea in the female treated with hyperpyrexial baths opens up an entirely new field for therapeutic fevers produced by baths. Our own experience, consisting of the administration of over five thousand treatments, was concerned chiefly with diseases of the central nervous system.

Doctor Pettit does well to stress the point that this treatment can be properly given only in a hospital where a personnel trained in the giving of such baths is in constant attendance. In our series no deaths attributable to the treatment have occurred. We have found it necessary to individualize the treatment, and by so doing it has been possible to treat individuals with hypertension, and even with myocarditis. Of course, in each case the treatment was modified to the needs of the individual.

Doctor Pettit's highly successful results have shown that the advantages of fever therapy in gonorrhea are even more satisfactory than those we have obtained in the treatment of syphilis of the nervous system, and he is to be congratulated on applying to this great field such a useful therapeutic measure.

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William Henry Gilbert, M. D. (746 Francisco Street, Los Angeles).—Doctor Pettit's paper upon gonorrhea in the female is timely. The subject is of tremendous importance to the patient and physician.

That the gonococcus spreads rapidly is an established fact; that it disappears spontaneously from the tissue is constantly demonstrated. This is especially true of the pelvis and is evidenced by the sterility of pus found in old tubes. The adnexa and perituterine tissues may be clear of the disease, but it can at the same time be demonstrated in the cervix and vulva. Unquestionably, the disease spreads by continuity of tissue, but I believe it is also disseminated through the lymphatics. This is especially true of the fulminating type.

With these thoughts in mind, the stage of the disease should be definitely determined before instituting treatment. There is a vast difference in the treatment of the acute, subacute, and chronic stages of the disease. During the very acute, or hot stage, before the balance of immunity is reëstablished, rest in bed and palliative measures offer the mode of treatment that can be most successfully applied. Surgical measures instituted against a green gonorrheal tube constitutes one of the great surgical mistakes, and should rarely, if ever, be undertaken. During this stage there is often involvement of the perimetrial, rectal, and vesical tissues, along with inflammation of the ovaries and tubes. The clinical picture then is so distressing that often it seems surgery is indicated and justified, but emphasis must be placed on the necessity for conservative treatment at that time. Rest in bed, ice-packs, protein therapy, and sedatives will yield a far greater percentage of cures at this time than surgery. After the fire has died down, other measures should be started.

I am satisfied that the therapeutic fever treatment as laid down by Doctor Pettit will afford a larger percentage of cures than any other method.

The treatment of the diseased cervix depends upon the extent and character of the infection. The cautery, in my hands, has yielded the best results. The Sturmdorf tracheloplasty is useful, but is inferior to surgical amputation. I have abandoned both procedures in favor of the cautery. Skene's glands are very difficult to cure; the cautery wire has been most serviceable. Bartholin glands when once infected are rarely entirely free of disease. Their complete extirpation without rupture through the labia offers a complete cure. The cure or removal of diseased Skene's and Bartholin glands will generally cure relapsing cases that have baffled other modes of treatment.

I am satisfied that protein therapy has a decided place in our armamentarium. This is especially true of diseased internal, rather than external, organs. It seems to exert little influence upon the diseased cervix or vulva. On the other hand, its action is quick and sure in many cases of acutely diseased uterine adnexa. Diathermy, in my hands, has not yielded the wonderful results other men have achieved. When it is used, great care must be exercised not to stir up a sleeping pelvic infection.

*

R. Glenn Craig, M. D. (490 Post Street, San Francisco).—Doctor Pettit has offered us an entirely new method in the treatment of gonococcal infections in the female which, in his hands, has given most satisfactory results. It cannot be too strongly emphasized that this treatment is a hospital treatment which must be carried out under the constant observation of attendants who are accustomed to giving these hot baths. If the treatment is used under other conditions, fatalities may result. Doctor Pettit has made a step forward, but we should await his report on a larger series of patients.

I cannot agree with Doctor Pettit's statement that gonococcal infections are so often carried to the internal genitalia through the lymphatics. If this is true, I would like to ask why gonococcal salpingitis is not seen after supravaginal hysterectomies or when a sterilization has been done. I would like to ask if he has seen one such patient. Until the evidence is changed, I must continue to believe our old teaching, that gonococcal infections seldom spread up to the lymphatics.

COLIC IN INFANCY—IN THE SECOND TRIMESTER*

REPORT OF CASE

By A. J. Scott, M. D.
Los Angeles

Discussion *by T. C. McCleave, M. D., Oakland; Ernst Wolff, M. D., San Francisco; Donald K. Woods, M. D., San Diego.*

Colic in infants for the first three months of age is so common that many erroneously consider it physiological. But colic in older infants from three to six months is very uncommon and when it apparently occurs a very careful diagnosis is desirable. A careful history is absolutely essential. A complete physical examination with the infant stripped is necessary. Etiological factors which may come into action in the second trimester of the infant's life will be considered in turn.

* Read before the Pediatric Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

ETIOLOGIC FACTORS

Indigestion.—Indigestion may be due either to a high fat or a high sugar content, or to food which is not suitable for that particular infant. The high percentage of fat found in certain milks may cause dry, constipated soap stools which are difficult to pass and at times give pain. Certain sugars, as milk sugar or dextrin malt preparations which are too high in maltose or glucose, as for example, corn sugar, may cause looseness of the stools, abdominal distension and cramps. Occasionally improper solid foods are fed even to an infant of this age. If so, that fact will usually be disclosed in the history. The reduction of the high fat milks and the use of the proper type of sugar usually brings prompt relief.

Angioneurotic Edema.—This condition is rare at this age and if the child has been on the same formula from the beginning without such a complication, then the condition need not be taken seriously. It is a possibility, however, which must not be overlooked in the history and examination of the infant, especially wherever there are urticarias or other signs of skin irritation. We must not forget that the breast-fed infant may have trouble from certain foods that the mother may eat, as noted by Shannon. Particular emphasis in such cases is seen in certain intractable eczemas. We must, however, be careful not to attribute the colic to the mother's diet until all other factors have been eliminated.

Cerebral Birth Injuries.—These may cause so much cortical irritation that a child, even at this age period, has definite spastic signs with more or less muscular rigidity, and an associated inability to properly care for the food. These infants cry a great deal and always seem in more or less distress, do not gain properly in weight or strength. The food is changed frequently as it may be thought that the food is the factor at fault, when, as a matter of fact, the trouble is primarily of a cerebral and not gastro-intestinal nature.

Some of these infants with cerebral birth injuries may not be particularly spastic but may be difficult feeders and have much gas. We have under observation one patient that has convulsions at varying intervals of from a week to a month, regardless of the care that is given to the preparation of its food. Blood calcium is within normal limits and gastro-intestinal studies with barium reveal no abnormalities and x-rays of the skull shows nothing abnormal. Infants such as this are the ones that are slow in their mental development, and at eighteen months usually are not able to sit, and seem many months retarded.

Certain Congenital Anomalies.—These are rather rare, but as found occasionally, include conditions such as strictures, adhesions, mesenteric cyst, with or without volvulus and Meckel's diverticulum with volvulus. The following case of Meckel's diverticulum is here reported.

REPORT OF CASE

Baby F., male, referred by Dr. A. Hon, was first seen August 21, 1929, age 4½ months, first child, instrumental delivery after slow labor. Birth weight, 8 pounds, 10 ounces. The child had been well up to the day before it came under observation. It had been breast fed every three hours. Bowel movements had been good until August 20, but were somewhat dry and lumpy. On this date it vomited but seemed to have no temperature. At 3 p. m. it started to whine and cry. The mother reported that for the preceding three weeks it would wake at night and fuss and seem to have abdominal gas. The mother had been on a fair diet with some restrictions. The infant had been given no laxative or enemas until August 20, and then with no results. When first seen on August 21 its temperature was 103. The infant was well nourished. It lay with its legs flexed and was very pallid. It had a hypospadias, but the testicles were down and there was no hernia. The heart and lungs were normal. The left membranatympani was pink and the throat was quite red. The abdomen was sensitive with slight rigidity, although it endured deep pressure without much flinching. The upper part of the abdomen was more full although no definite mass could be felt excepting around the umbilicus. On deep palpation its respiration became grunty. Its face had an anxious look. It vomited greenish brown material. The blood count was 17,800, with 60 per cent polynuclears and 32 per cent lymphocytes. It passed small mucoid stools tinged with some blood. A tentative diagnosis of intussusception was made and the infant was removed to the hospital where it was operated on under ether anesthesia by Dr. W. L. Huggins. Through a right rectus incision about 300 to 400 c.c. of blood fluid was evacuated from the abdominal cavity. A Meckel's diverticulum, containing about one ounce of fluid and attached underneath the navel, had caught a loop of bowel, twisting it and forming a complete block. The serous coating of the bowel was glossy and the color rapidly improved when relieved of the tension. The attachment of the diverticulum was divided and it was removed.

The child was returned to bed in good condition but the nurse quoted that in a few minutes his skin became pallid and a brown liquid ran from his nostrils. The infant died suddenly.

Pathological report: "Specimen is sac-like structure with narrow mouth, which is approximately 0.6 cm. in diameter. The whole specimen is approximately 4½ cm. in diameter. Surface dark red and surface lined with this smooth blood-stained membrane. Diagnosis: Meckel's diverticulum."

No autopsy was permitted, consequently we were unable to determine whether there was any other cause for the sudden death, although from the condition of the child when it was sent to the operating room, we were of the opinion that shock was the principal cause of death.

Porter,[1] in his list of 184 patients, mentions twelve under seven months of age, and of these seven died and four recovered, one result not smooth. Walls infiltrated with hemorrhage. Inner being mentioned. Nine of these patients were under two months of age. There has been very little in the current literature on the subject. The mortality is higher than 50 per cent. It behooves us to be on special guard when a diagnosis is made of a surgical condition, in order to avoid delay that might be dangerous, as even in a few hours irreparable damage may be done.

Pyuria and Renal Colic.—For every infant an urinalysis should be made. An urinalysis is particularly indicated in infants where there is a history of so-called colic of short or long duration. The urine may show pus, with or without blood. There may be no history of change of temperature at such times, although usually where there is pus there is more or less temperature. This is particularly emphasized in cases of female infants, as they are more frequently affected with pyuria than male infants. Stone in the ureter or in the bladder must not be forgotten. Though rare, such cases occur. The microscopic examination of the urinary sediment will give the first definite lead when blood corpuscles are found. Further studies should be made in coöperation with a competent urologist.

The Neurotic Child with Nervous Parents.—Such an infant is apt to be thin, costive, overhandled, overwrapped. It may be fretful, irritable and may cry a great deal and be unable to properly digest food. It may have had varying degrees of colic until proper dietary and hygienic regimen are established. Such an infant may have had a poor start for frequently such a child may be denied its own mother's milk because the mother may think she is "too nervous." If such a mother does nurse the child it seems to be worse then when it is fed artificially. Such infants at times become serious problems in pediatric practice, and it is no easy task to manage the parents and the relatives so as to give the infant its proper chance.

Inflammation of the Ear and Mastoids.—Due to the work of Dean and Marriott, the attention of the medical world has been drawn to the relationship between the middle ear and mastoid infections and the gastro-intestinal tract. It is a common finding for an infant which has been doing well in the early months of life on breast feeding, or on a proper formula, to have, following a mild coryza, symptoms of indigestion, loose stools, colic and more or less temperature. Such infants are frequently given physic to get rid of the supposedly irritating food products, or the diet is changed, or perhaps they are starved and what not until they develop symptoms of dehydration and acidosis, ending often in death.

If the ears of such babies are carefully studied, definite changes in the color of the ear drum and a certain amount of sagging of the canal walls, particularly the posterior and superior, will be found, but no swelling or particular tenderness back of the ear. Repeated myringotomies release only a small amount of pus, if any. These cases show a marked improvement following a simple mastoidectomy, which must usually be bilateral. However, not all infants at this age with these symptoms of digestive upset require such radical procedures, but some may be markedly improved and even relieved of all their symptoms by a simple myringotomy.

Intussusception.—This complication is usually considered to be more common from 6 to 18 months of life. It may occur earlier and should be kept in mind as a possibility of colic. A report of a case follows:

Baby G., female, aged 6 months. The child was born at full term, birth weight 6 pounds, 12½ ounces;

was breast fed every four hours for four months, then feedings were supplemented with artificial food. Infant did well, with normal bowel movements, until the morning of September 4, 1929, age at that time being six months. The mother telephoned that the child had awakened at 6 a. m., apparently with abdominal cramps, followed by one normal stool. Then, inasmuch as the cramps did not seem to abate, the mother gave an enema and got some bloody mucus. When the infant was seen at 10:30 a.m., it had a temperature of 99. A little mass was palpable in the median line on a level with the umbilicus, which seemed to be tender. The child was not in shock and five drops of 1/1000 atrophin every three or four hours were ordered and the child was left under close observation. At 2:30 p. m., it had a large bloody stool, the mass was still present, the lower right quadrant seemed empty. A diagnosis of intussusception was made and the child was operated on at 5 p. m., by Dr. George Ernsberger, who reduced an intussusception at the ileocecal valve, and also removed the appendix, which was about three inches long and acutely engorged. The child made an uneventful recovery.

Microscopic examination of the appendix: "Lining intact, areas of hemorrhagic extravasation. A few collection of leucocytes, many eosinophiles in mucosa. Lymphoid tissues hyperplastic, collection of round cells in subserous and mucous layers. Diagnosis: Chronic appendicitis with early acute inflammation."

The interesting point to speculate on here is: Was the acute inflammation of the chronic appendicitis responsible for the intussusception, or was the acute condition due to the strangulation?

Strangulated Hernia.—This condition must not be overlooked. Platou[2] notes a case of a female infant eight weeks old, with a strangulated left inguinal hernia, which was operated on with recovery. Some years ago we observed a male infant, six weeks old, which had a strangulated right inguinal hernia of about thirty-six hours duration, and which was operated upon and made an uneventful recovery. These two cases are in an age period younger than the one we have under discussion, but they are brought in to emphasize the fact that these conditions may be present and must not be overlooked.

SUMMARY

The fact that an infant is past three months of age and has symptoms suggestive of colic should make one watch for possible congenital abnormalities or intussusception. A painstaking history is of the greatest value. Likewise a thorough examination of the stripped child. The child should be carefully studied with particular reference to otoscopic examinations of the ears. The urine must be examined microscopically, to rule out pus or microscopic blood; and the abdomen must be palpated, particularly in the region of the umbilicus for any small mass or tumor, which, if present, usually is painful and causes the infant to cry out when manipulated. In the abdomen there is a suggestion of emptiness in the lower part. A bloody mucoid stool may be one of the signs.

The use of barium enemas and barium meal, and of fluoroscopy and x-ray plates is a waste of valuable time, if a diagnosis has been made of some abdominal condition requiring surgery, as the exact or differential diagnosis is not so important as the fact that surgery is indicated. X-rays of mastoids at this age are not to be depended upon. The diagnosis should be made on clinical findings. The x-rays should be adjuvants.

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DISCUSSION

T. C. McCLEAVE, M. D. (1904 Franklin Street, Oakland).—Dr. Scott's reference to congenital anomalies of the intestine as a possible cause of colic-like pain in infants is exemplified by a case seen by me of an infant some nine or ten months old who had a history of repeated attacks of apparently severe pain in the abdomen, the present attack of several days' duration. The baby, when seen, was in extremis, with fecal vomiting, a distended upper abdomen and a flat lower abdomen, a condition obviously indicative of intestinal obstruction. Operation revealed the cause of the obstruction to be a diverticulum which was inverted, incarcerated and gangrenous, the outer extremity of which was a disc of solid tissue shown later on by microscopical examination to be accessory pancreas tissue. Time was not taken to allow examination of the portion of intestine from which the diverticulum originated, owing to the baby's bad condition, and further examination was not permitted after death, which occurred shortly after operation. It was evident that the recurrent attacks of pain were caused by the repeated transient invagination of the diverticulum which acted like a ball-valve in the lumen of the gut; finally, however, spontaneous reduction failing to occur as heretofore, becoming incarcerated as a result of congestion and swelling.

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ERNST WOLFF, M. D. (516 Sutter Street, San Francisco).—Dr. Scott's paper has extraordinary merits in view of the many urgent problems connected with the proper diagnosis of acute gastro-intestinal disturbances in the second trimenon.

The case report of intussusception in a six months old baby is to me especially interesting on account of two features. These were duplicated in a case of intussusception in a three months old baby boy, whom I observed recently in private practice.

It is mentioned in most of the next books that bloody stools do not appear for six to seven hours after the intussusception has started. In Dr. Scott's case and in mine bloody mucus appeared in the second hour after the onset of abdominal pain.

The second coincidence is the finding of an acutely engorged and red appendix during the operation. The microscopic report pointing to chronic appendicitis with early acute inflammation seems to be strange when the tender age and the uneventful past history of the patient is taken into consideration.

There is the possibility that the term of hyperplastic lymphoid tissue may denote only a physiological condition of a young baby. As the appendix is situated very near to the ileocecal valve, which is ordinarily the site of the intussusception, strangulation may easily explain the pathology of the appendix in both cases.

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DONALD K. WOODS, M. D. (2545 Fourth Street, San Diego).—Dr. Scott's paper is valuable not so much because of the particular cases reported, but on ac-

count of the emphasis placed on the need of careful examination and definite diagnosis in recurrent attacks of so-called colic.

Colic, as he brings out, is usually caused by exacerbation of subacute conditions or recurring acute trouble. Also the underlying cause is often of a very serious nature.

One cause for recurrent colic which is rather frequent has not been discussed, namely, pylorospasm. This is encountered not infrequently. It may or may not be accompanied by vomiting. In some of the children a history of vomiting during the first three months is given, but not later. The attacks are intermittent and usually occur soon after feeding. X-ray will show a very slow emptying time for the stomach. The attacks are usually relieved by small doses of atropine before feeding, or in more severe cases by ⅛ to ¼ grain doses of phenobarbital with or without atropine. It would be well to exclude pylorospasm in all cases of colic where the diagnosis is obscure.

However, I feel that, as stated before, the chief value of Dr. Scott's paper is to emphasize the fact that recurrent pain should be given the same searching clinical consideration in early childhood as would be given to similar symptoms in the case of an adult.

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Doctor Scott (Closing).—I wish to thank the men who have discussed this paper. My object in bringing this before the section was to provoke discussion and remind us that there are other causes than food which may cause colic in infants past the first three months of life. We tell our students to strip the child, examine the ears and the urine. If these admonitions are heeded there should be fewer errors in diagnosis and fewer important points overlooked.

A PROFESSION WITH A SOUL*

By W. H. Hood, M. D.
Reno, Nevada

GREAT has been the progress of medicine in the last century. Greater still has been the progress of our profession since the illustrious Lister applied the principle of Pasteur, scarcely two decades before the organization of the Pacific Association of Railway Surgeons some twenty-eight years ago. And even greater will be the progress in the days to come, for today in hundreds of laboratories there are thousands of investigators following in the footsteps of other pioneers, and to these future investigators honor will also be given, for through their efforts scientific medicine will continue to advance.

The clerical profession deplores today what it terms our material age, in which the chief aim in life is apparently the obtaining of wealth with which to gratify the body, without regard to those deeper pleasures of the mind or soul which money cannot buy. So the thought sometimes comes to me that, unmindful of the biblical injunction that "Man cannot live by bread alone," many in our profession may become so materialistic that they overlook the fact that our profession should possess a soul as well as a body—a soul that is over and above and which cannot be measured by the material scientist with his instruments of precision. Our service to humanity will be fuller if this soul element be not ignored.

Today there are many cults and systems of healing competing with scientific medicine. That such have many intelligent followers there is no denying. If they seem to their credulous followers to succeed, is it not perhaps, because they have capitalized an element that we have been too prone to neglect?

As I grow older in the practice of medicine, and in the experiences of life, I feel more and more the importance of this soul element in medicine. My thought to you today is that we, who from habit are concerned largely with the material elements of the body, may gain in value by keeping in mind this undefined soul which exists also in our patients as it is partly evidenced through the psychical element in disease. We all are familiar with the effects of a sick body on the mind, but we sometimes seem to forget that as great, or greater, are the effects of a sick mind on the body.

In our school days we were taught that a perfect bodily function depended upon healthy organs, upon a healthy supply of blood to these organs, and upon a healthy nerve supply to these organs. By nerve supply I do not visualize an inert wire that conducts an impulse, but the living battery that generates it.

As you well know, we have in the brain two sets of nerve centers: the upper nerve centers which have to do with thought, intelligence, will power, memory, and the like; and the lower subconscious or medullary centers, through which the upper nerve centers act. This is a wise provision of nature, universally observed. For example, when the student of music learns to play the piano every key that he strikes, every note that he sounds, is a conscious effort, and is followed with fatigue; but when, in time, by constant practice, he masters the instrument, with only the decision of the will to do, these lower centers act automatically and he plays even the most complicated compositions of the great masters without effort and without fatigue.

To apply this example, what happens in health or normal processes may also happen in sickness. In your own experiences you have seen how these subconscious centers act viciously, with symptoms continuing long after the cause of the illness is removed. These unfortunate patients need mental and not physical treatment. First of all let the physician make a complete examination, using the aid of all scientific tests, so that he can be sure of his position; for if the physician is not confident he is in no position to inspire confidence in the patient. With sympathy, then, assure the patient that his trouble is not imaginary but real. Then trace the progress of the illness from the beginning and illustrate how the subconscious center acts automatically in the ordinary pursuits of life. To obtain a cure it is necessary to re-educate the patient to bring this center into normal action. This cannot be done by an effort of the will power, for trying to do a thing expresses in itself an element of doubt of success, but it can

* President's address at the twenty-eighth annual session of the Pacific Association of Railway Surgeons, August 23, 1930, at Coronado, San Diego.

be done by cultivating an attitude of complete indifference, neither anticipating nor recalling the symptoms.

Doubtless many of you have had a similar experience to the one I am about to relate, an experience that started me on this line of thought. More than one-third of a century ago I was called to a little mining camp to attend a young girl with appendicitis. According to the standard treatment of the day, I purged her with free doses of Epsom salts, advising her to come to Battle Mountain (where I was then located) in two days for observation, with the possibility of sending her to San Francisco for an operation. The young lady came for observation and continued on to San Francisco. One of the famous surgeons there kept her under observation for another week, when he operated; but with the usual remark as often heard by country doctors, "You came just in time, another day would have been too late."

In a short time this emotional girl (we are all emotional) returned home in good health, and carrying as "Exhibit A" her appendix preserved in a bottle. Her mind or brain was filled with her new experiences—her operation, the first trip on the railroad train, her visit to San Francisco—experiences of which she talked continually. Her good health continued for several months, when she began to suffer with so-called gas pains and adhesions. As soon as finances could be arranged she renewed that wonderful experience—that trip to the hospital. Three times the operation for adhesions was repeated, each time with relief for a year or two, when the trouble would recur. But financial reverses prevented further operations and the suffering continued. After some years, report came that she was completely cured and became a useful member of society, a wife and mother. Inquiry revealed that the miracle was performed by the use of the "Ouija" board.

All of us at some time or another in our practice might recall similar experiences. We know that there is more than a scientific and materialistic side to medicine. We know that medicine has a soul.

I hope that you have been interested in my theme. I advance my theme, "A Profession with a Soul," in all sincerity, after a lifetime devoted to the active practice of medicine.† Many of you may be in hearty accord with me, others may disagree. I have one consolation, however. You remember, in the essay "Cicero De Senectute" the pleasures of old age and the bliss of the hereafter are depicted, the essayist adding that if he was in error concerning immortality he had one happy thought, that there would be none of his critics there to ridicule him. So, knowing that the president's address is not open to discussion, I am in the same favorable position, for if I am wrong in this my belief I am happy in the thought there is no one here who will be allowed to call me to task.

Farmers and Merchants National Bank Building.

† Editor's Note.—Doctor Hood has the distinction of having been the first physician to receive a license to practice in Nevada.

OCULAR FINDINGS IN DIABETES*

COMMENT ON AN UNSELECTED GROUP OF ADULT DIABETICS

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DISCUSSION *by George Newton Hosford, M. D., San Francisco; M. F. Weymann, M. D., Los Angeles.*

DISTURBANCES of the visual apparatus are associated more commonly with diabetes mellitus than with any other systemic disease, with the possible exception of arteriosclerosis. Since Edward Jaeger first noted the presence of retinitis in diabetics about seventy years ago, many studies of ophthalmic lesions associated with that disease have appeared in the literature. However, few of these studies have been sufficiently comprehensive to include all the abnormal ocular findings. Of even greater importance is the fact that sufficient effort rarely has been made to determine the extent to which diabetes is responsible etiologically for diseased conditions confined to the eye. If the ocular disturbances are to have diagnostic value, it must be shown conclusively that diabetes, rather than an associated condition, is the causative factor.

SCOPE OF THE STUDY

It therefore seemed advisable to undertake a detailed study of the eyes in a group of unselected adult diabetic patients for the purpose of determining the incidence of ocular complications. Sixty-eight patients were included, among whom twenty-four were males and forty-four were females. The ages varied from eighteen years to seventy-nine years, the average age being fifty-four years. The only patients excluded from the series were those with acromegaly and exophthalmic goiter. In addition to a detailed and complete examination of the eye, every effort was made to discover systemic complications which might be associated with the diabetes and be exercising a causative influence in the production of the ophthalmic findings.

The diagnosis of diabetes mellitus was based on the presence of glycosuria and a postprandial glycemia above 150 milligrams, or a fasting blood sugar above 120 milligrams per 100 cubic centimeters.

The highest blood sugar obtained during the period of observation in this clinic was .559 milligram per 100 cubic centimeters. Due consideration must be given the fact that in certain instances the diabetes was well controlled at the time of entry, so that the blood sugar shown does not offer a true criterion of the severity of

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* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

the disease. For example, in Case 48 the highest blood sugar given is 171 milligrams. However, this patient was taking fifty-five units of insulin daily.

TABLE 1.—*Summary of Clinical Laboratory and Ophthalmic Data Obtained in the Study of Sixty-eight Adult Diabetics*

NO.	AGE	HIGHEST BL.SUG.	N.P.N.	U.A.	PHENOL	MOSENTHAL	WASS.	BL. PR.	SYSTEMIC COMPLICATIONS
1	53	.357	29.8	4.6	40%	1.010 1.026	-	185 115	As. R.I. Obesity.
2	71	.244	35.3	4.4	75%	1.005 1.016	-	190 80	As.R.I. Hypertension.
3	75	.421	36.9	4.4	55%	mat obt.	-	140 70	As. R.I. Obesity.
4	79	.256	Bl. urine	35%	75%	1.010 1.016	-	160 100	As. R.I.
5	51	.212	30.0	2.4	55%	1.009 1.025	-	140 85	None
6	45	.305	37.0	3.0	50%	R.U.F. P.T.	-	156 90	As. Obesity. Pelvic pathol.
7	56	.203	40.0	2.4	60%	1.003 1.015	+++	144 94	As. R.I.Syph. Aortic Insuff. Aneurism
8	52	.332	40.0	3.4	65%	1.007 1.019	-	140 70	As? R.I.Obesity
9	59	.179	44.8	3.6	40%	omit	-	150 90	As. R.I.
10	68	.271	42.3	2.1	65%	not done	-	150 90	As. R.I. Gangrene
11	52	.439	30.9	4.1	65%	1.006 1.017	-	180 95	As. R.I. Obesity.
12	50	.288	34.9	4.8	65%	1.012 1.021	-	200 90	As. R.I. Obesity.Mom tox.goi
13	56	.396	28.6	6.0	55%	1.002 1.006	-	96 70	As. R.I. Hemochromatosis.
14	55	.381	34.7	5.0	45%	3 point variation	-	158 78	As.R.I.Obesity. Cholecystitis.
15	63	.380	35.7	4.0	60%	1.003 1.016	-	160 70	As.R.I.Cholecystitis.Cerebrovasc. accident.
16	48	.297	29.1	2.6	40%	1.013 1.027	-	160 90	Diab.Neuritis.
17	49	.302	33.6	3.0	50%	not obt.	-	220 115	As.Hemaplegia.
18	58	.367	25.9	3.3	65%	U. neg.	-	140 85	None
19	48	.235	38.5	3.7	28%	1.004 1.026	-	110 70	R.I. Pulmonary T.B.
20	34	.320	29.9	2.8	65%	1.009 1.022	-	128 80	Obesity.Cystitis.
21	24	.203	42.8	2.8	60%	1.009 1.023	-	124 64	R.I.
22	69	.296	36.3	3.4	45%	1.008 1.015	-	126 66	As. Dermatitis.
23	66	.280	40.0	3.5	59%	trace Alb.	-	240 100	As. R.I. Hypertension.
24	69	.240	37.5	3.0	64%	Neg.	-	120 80	As. Prostatitis
25	64	.340	44.4	2.7	65%	1.009 1.027	-	170 100	As.R.I.Obesity. Hypertension.
26	72	.350	46.1	2.9	49%	Neg.	-	140 100	As.R.I.Arthritis.
27	56	.357	40.0	2.7	69%	1.009 1.012	-	210 120	As.R.I.Obesity. Hypertension.
28	56	.400	32.6	2.8	60%	1.010 1.022	++ ++	136 60	Pulm.Emphysema. Syphilis.
29	60	.222	36.1	4.2	55%	1.010 1.027	-	110 80	As.R.I.Obesity. Pulm. T.B.
30	43	.444	50.4	3.1	50%	1.009 1.030	-	110 66	R.I.
31	60	.303	41.4	3.8	65%	not done	-	192 90	As.R.I.Obesity. Hypertension. Arthritis.
32	58	.559	44.4	3.4	75%	U. neg.	-	126 82	As. R.I.
33	64	.222	32.2	3.9	55% 75%	Alb. casts	-	280 140	As.R.I.Coma. Cardiac Hypertrophy.
34	55	.381	28.0	3.9	50%	1.012 1.027	-	225 115	As. Obesity. Hypertension.
35	50	.482	28.6	3.8	55%	1.022 1.024	-	130 95	As.R.I.Obesity. Cholelithiasis.
36	25	.250	34.0	3.1	65%	1.002 1.009	-	130 80	R.I. Coma.
37	55	.452	24.0	3.6	60%	Alb.-	-	100 66	As.
38	47	.250	39.4	4.9	60%	not done	-	150 84	R.I. Obesity.
39	29	.363	29.0	2.8	60%	1.004 1.017	-	135 85	None.
40	52	.460	30.8	2.8	50%	1.001 1.010	-	150 110	As. R.I. Arthritis.
41	66	.209	29.3	3.1	45%	1.003 1.027	+++	140 80	As. Syphilis.
42	64	.242	28.0	3.2	65%	1.006 1.016	-	130 90	Paralysis Agitans.
43	50	.380	34.8	4.5	40%	1.003 1.017	-	124 80	As. R.I.Obesity
44	55	.530	30.0	1.8	55%	1.007 1.027	-	108 64	None.
45	78	.320	29.7	3.1	61%	1.008 1.016	-	150 80	As.
46	63	.241	40.0	5.4	30%	1.016 1.026	-	230 110	As.R.I.Hypertension.Myocarditis.
47	43	.218	32.3	1.8	60%	Alb.pus cells	-	130 70	None.
48	23	.171	32.7	2.4	60%	U. neg.	-	136 70	Sinusitis.
49	18	.435	35.0	2.2	65%	U. neg.	-	108 84	Pelvic peritonitis.
50	65	.260	50.0	3.5	60%	1.003 1.013	+	105 65	As.R.I. Syph. Nephrolithiasis
51	56	.250	45.1	3.9	60%	U. neg.	-	104 64	As. R.I. Arthritis.
52	58	.248	33.3	3.2	65%	not done.	-	155 90	Arthritis.
53	68	.228	40.0	4.2	65%	not done	-	150 90	R.I.
54	46	.360	32.0	2.9	55%	U. neg.	-	120 80	Arthritis.
55	23	.195	30.0	4.6	50%	None.	-	134 96	R.I.
56	46	.447	48.7	5.0	N.	Alb. pus cells.	-	165 105	As. R.I. Hypertension.
57	50	.328	26.1	3.9	65%	U. neg.	-	135 80	None.
58	53	.183	28.2	3.5	40%	heavy trace Alb.	-	190 90	As. R.I. Hypertension.
59	58	.352	42.5	4.6	50%	U. neg.	-	135 95	R.I. Obesity.
60	52	.180	41.1	2.4	40%	U. neg.	-	220 120	As. R.I. Hypertension.
61	65	.168	29.7	3.4	55%	U. neg.	-	200 100	Auricular fibrillation.Myocarditis.
62	71	.320	37.5	4.0	40%	not obt.	-	132 90	As. R.I.
63	50	.179	29.0	5.0	55%	U. neg.	-	118 90	Chr. endocervicitis.
64	45	.268	41.4	3.1	60%	U. neg.	-	150 90	As. R.I. Carcinoma cervix
65	62	.485	33.0	2.4	65%	1.030 1.032	-	192 86	Hypertension. Cardio renal
66	58	.333	45.5	3.7	55%	Alb.	-	165 95	Vasc. disease R.I.Obesity.Hyperten.Myocardit As. Arthritis. Hyperten.Anemia
67	53	.448	38.2	3.0	50%	Alb.F.P.T.	-	175 90	
68	66	.200	28.5	4.0	50%	not obt.	-	150 85	R.I. Hypertension.

Abbreviations used are:
As.—Arteriosclerosis.
R. I.—Renal impairment.
O.—Opacities.
C.—Cataract.
N.—Normal.
HP.—Hyperopia.
M.—Myopia.
P.—Presbyopia.

ASSOCIATED AND COMPLICATING DISEASES

Arteriosclerosis.—The most common systemic disease found with diabetes is arteriosclerosis, which in turn may produce definite evidence of renal impairment. Early arteriosclerosis is difficult to determine clinically. However, it can be reasonably assumed that its presence in the retinal vessels is but part of a generalized vascular senility. Consequently, such a diagnosis was made if the vessels of the retina manifested the following characteristics:

1. Compression effects at the arteriovenous crossing points.
2. Irregularities in the lumen of the vessels.
3. Increase of the arterial light streaks.

Kidney Function.—Determination of the renal status was made with the utmost thoroughness in every case. Instead of merely a routine urine examination serving as the basis for ascertaining the presence of a complicating nephritis, more elaborate studies were made. The nitrogenous elements of the blood stream were determined, the phenolsulphonephthalein excretion estimated, and, when practical, a Mosenthal kidney function test was performed. Renal impairment was assumed if the nonprotein nitrogen content of the blood was found to be above 40.0 milligrams per 100 cubic centimeters, or the uric acid content of the blood above 4.0 milligrams per 100 cubic centimeters. Likewise, if there was definite fixation of specific gravity in the urinary output during twenty-four hours, or if the phthalein excretion was found to be below thirty-five for two hours, it was considered that the patient had kidney damage. Such detailed study was necessary, inasmuch as considerable controversy has

TABLE 2.—*Diabetics with Ocular Disease and Systemic Complications*

CASE NO.	AGE	EYE COMPLICATIONS	COMPLICATING SYSTEMIC DISEASES
1	53	Lenticular opacities.	As. R.I. Obesity.
2	71	Lenticular opacities.	As. R.I. Hypertension.
3	73	Lenticular opacities.Retinitis Punctata.	As. R.I. Obesity.
4	79	Retinitis.Ocular palsy.Lenticular opacities.	As. R.I.
5	51	Lenticular opacities. Choroiditis (old).	None.
6	45	Lenticular and vitreous opacities.	As. Obesity. Pelvic pathology.
7	56	Lenticular opacities.	As. R.I. Syphilis.Aneurism. Aortic Insufficiency.
8	52	Cataracts.Xanthelasma.	As? R.I. Obesity.
9	59	Chr.Conj. Retinitis. Lenticular opacities.	As. R.I.
10	68	Chr.Conj.Lenticular opacities.	As. R.I. Gangrene.
11	52	Lenticular opacities.Circinate retinitis.	As. R.I. Obesity.
12	80	Lenticular opacities.Retinal oedema.Div.strabismus.	As. R.I. Obesity.Non toxic goitre.
13	56	Chr.Conj.Lenticular opacities. Corneal ulcer O.D.	As. R.I. Hemochromatosis.
14	55	Lenticular opacities.	As. R.I. Obesity.Cholecystitis.
15	63	Lenticular opacities. Choroiditis (old).	As. R.I. Cholecystitis.Cerebrovascular accident.
16	48	Lenticular opacities. Choroiditis (old)	Diabetic neuritis.
19	48	Lenticular opacities.Retinitis Punctata.	R.I. Pulmonary T.B.
21	24	Retinitis at macula only.	R.I.
22	69	Chr.Conj.Lent.and vitreous opacities.Choroiditis (old).	As. Dermatitis.
23	66	Lenticular opacities. Choroiditis (old).	As. R.I. Hypertension.
24	69	Chr.Conj.Lenticular and vitreous opacities.	As. Prostatitis.
25	64	Lenticular opacities.	As. R.I. Obesity.Hypertension.
26	72	Chr.Conj.Lenticular opacities.	As. R.I. Arthritis.
27	58	Chr.Conj.Retinitis Punctata.	As. R.I. Obesity.Hypertension. Pulmonary Emphysema.
28	56	Lacrimal fistula.Chr.Conj. Chr.Dachryocystitis.	Syphilis.
29	60	Chr.Conj. Retinitis. Rotary Nystagmus.	As. R.I. Obesity.Pulmonary T.B.
30	43	Chr.Conj.Lenticular opacities. Neuro retinitis.	R.I.
32	58	Lenticular opacities. Retinitis.	As. R.I.
33	64	Lenticular opacities.	As. R.I. Coma.Hypertension. Cardiac hypertrophy.
34	55	Lenticular opacities. Choroiditis (old).	As. Obesity. Hypertension.
35	50	Lenticular,vitreous opacities. Retinitis.	As. R.I. Obesity.Cholelithiasis.
41	66	Cataracts.	As. Syphilis.
42	64	Cataracts.	Paralysis agitans.
43	50	Xanthelasma.Retinitis. Lenticular opacities.	As. R.I. Obesity.
45	76	Cataracts.	As.
46	63	Lenticular opacities. Retinitis.	As. R.I. Hypertension. Myocarditis.
51	56	Lenticular,vitreous opacities. Retinitis.	As. R.I. Arthritis.
53	68	Lenticular opacities. Retinitis.	R.I.
55	23	Lenses removed for cataract.	R.I.
64	45	Retinitis.	As. R.I. Carcinoma of cervix.
65	62	Lenticular,vitreous opacities.	Hypertension.Cardio renal vascular disease.As.
67	53	Lenticular opacities.	As. Hypertension. Arthritis. Anemia.
7	66	Lenticular,vitreous opacities. Choroiditis (old).	R. I. Hypertension.

Abbreviations used are:
As.—Arteriosclerosis.
R. I.—Renal impairment.
Chr. Conj.—Chronic conjunctivitis.

always existed regarding the rôle diabetes plays in the etiology of various ocular abnormalities.

PROCEDURE IN THESE STUDIES

The ocular studies were based on the following observations:

1. Ocular symptoms.
2. Vision.
3. External eye examination.
4. Gross studies of the media.
5. Examination of the fundus with separate records for the disk, the retinal circulation and the retina, in each case.
6. Tonometric measurements of the intraocular pressure.
7. Determination of refractive error and time of appearance of presbyopia.
8. Perimetric study.

A study of the symptoms was undertaken, both ocular and general, to determine particularly the relative value of the former as a diagnostic aid. Twenty-nine patients, or 43 per cent, mentioned, among their complaints on entering the clinic, symptoms referable to the visual apparatus. This assumes greater importance when it is realized that, in most instances, the various complaints were elicited by an internist, rather than by the specialist interested in visual disturbances. However, and of more significance in the present study, twelve of these patients originally presented themselves to the eye clinic, and the presence of diabetes was determined in the course of a general examination requested by the examining ophthalmologist because of suspicious findings. The most common ocular complaint was failing vision. In most instances, this was explained by the presence of retinitis, or of lenticular opacities. Headache was the complaint next in point of frequency. Less frequent symptoms were lacrimation, photophobia, night blindness (one case), scotomata, and persistent conjunctivitis.

Table 2 shows the number of diabetics presenting ocular disturbances in our series, and the various types of lesions found.

PATHOLOGIC CHANGES

Carl von Noorden,[1] in a study of 477 diabetics in 1912, found 58 per cent with eye complications. In patients beyond the fifth decade in age, the percentage was increased to 80 per cent. Anderson [2] found that 28 per cent of the 292 diabetic patients he studied had visual disturbances. Many other statistics, showing similar results, are available. In our series, ocular abnormalities occurred in 63 per cent, but, as will appear later, not all of these can be attributed to diabetes.

Changes in Retina.—Retinitis is the most frequent and most important ocular disease associated with diabetes. Studied first by Edward Jaeger in 1855, and more thoroughly by Hirschberg [3] in 1890, this disease has since claimed the attention of many ophthalmologists. Although it is not easily detected through the undilated pupil, or through the cloudy lens of an elderly subject, the presence of retinitis in a patient coming to an ophthalmologist because of failing vision, may lead to a diagnosis of hitherto unsuspected diabetes.

The following characteristics are constant:

1. Retinitis is absent in uncomplicated diabetes; when present, it is usually accompanied by generalized arteriosclerosis or renal disease. Unlike albuminuric retinitis, that found with diabetes has no prognostic value.

TABLE 3.—*Patients with Retinitis Together with Systemic Complications*

CASE NO.	AGE	RETINA	COMPLICATING SYSTEMIC DISEASES
3	75	Retinitis Punctata.	As. R.I. Obesity.
4	79	Retinitis.	As. R.I.
5	51	Choroiditis (old).	None.
9	59	Retinitis.	As. R.I.
11	52	Circinate retinitis.	As. R.I. Obesity.
12	50	Retinal Oedema.	As. R.I. Obesity.Non toxic goitre.
15	63	Choroiditis (old).	As. R.I. Cholecystitis.Cerebro vascular accident.
16	48	Choroiditis (old).	Diabetic neuritis.
19	49	Retinitis Punctata.	R.I. Pulmonary T.B.
21	54	Retinitis at macula only.	R.I.
27	56	Retinitis Punctata.	As. R.I. Obesity.Hypertension. Pulmonary emphysema.
29	60	Retinitis.	As. R.I.Obesity.Pulmonary T.B.
30	43	Neuro retinitis.	R.I.
32	58	Retinitis.	As. R.I.
34	55	Choroiditis (old).	As. Obesity. Hypertension.
35	50	Retinitis.	As. R.I. Obesity. Cholelithiasis.
43	50	Retinitis.	As. R.I. Obesity.
46	63	Retinitis.	As. R.I. Hypertension.Myocarditis.
51	56	Retinitis.	As. R.I. Arthritis.
53	68	Retinitis.	R.I.
64	45	Retinitis.	As. R.I. Carcinoma of Cervix.
66	66	Retino choroiditis (old).	R.I. Hypertension.

Abbreviations used are:
As.—Arteriosclerosis.
R. I.—Renal impairment.

2. It is most commonly seen in patients beyond fifty years of age, who have a mild diabetes. It is never seen in juvenile diabetes. Clapp's [4] youngest patient was thirty-four years old, Nettleship [5] reported one patient thirty-five years of age, and Foster Moore's [6] youngest patient was thirty-nine.

3. It is usually bilateral.

4. The most common form of retinitis associated with diabetes is seen as small, irregular, sharply defined white patches, single or in groups, not tending to become confluent, and occurring in the macular region or in the region between the macula and the disk. The stellate figure is not seen. Punctate hemorrhages may be found scattered about the retina; but other retinal changes like edema, patches of soft fluffy exudate and optic neuritis, are uncommon.

The microscopic pathology was described by Lo Russo Donata [7] as follows: "The vessels show hyaline thickening. Hemorrhages are present in all the retinal layers. Deposits of hyaline-like material occur in the nerve fiber and ganglion cell layers. These are probably coagulated fibrin. Degeneration of the ganglion cell layer is apparent."

Retinitis was observed in our series in sixteen cases, or 23 per cent. These have been grouped in Table 3.

From this study, it must be concluded with Spalding and Curtis,[8] Wagener and Wilder,[9] Beauvieux and Pesme,[10] and others, that the retinitis seen with diabetes is primarily the result of cardiovascular-renal disease, although possibly modified somewhat by the presence of the diabetes. The fact that retinitis has only been observed in patients who have attained middle life lends support to this assumption. It may be noted that the so-called retinitis centralis punctata diabetica of Hirschberg occurred three times in our series. This is a higher percentage than reported by Wagener and Wilder, who found it only twice among 300 diabetics; Spalding and Curtis found it twice among 307 diebetics.

While the term "diabetic retinitis" probably is a misnomer, inasmuch as diabetes apparently is not related etiologically to its development, our studies seem to indicate that the retinitis seen in diabetes has a distinct diagnostic value. Its characteristics are not difficult to recognize, and when present in its typical form, which is not unusual, a detailed examination of the patient should be made to eliminate diabetes as a contributing factor. The presence of retinitis of a more or less uniform pattern, in sixteen cases among sixty-eight adult diabetics, supports this view.

Lenticular Changes. — Lenticular changes are usually considered the second complication of importance in diabetes. If we restrict the term "diabetic cataract" to that type seen in young people or in those in early middle life, in which the opacity is bilateral and rapidly progressing, often reaching maturity within a few months, it is a rarity. In our series, although the youngest patient was eighteen years of age, none was seen. However, one patient, Case 55, who was twenty-four years of age, had previously been operated on for bilateral cataracts, which probably appeared subsequent to the onset of his diabetes, some ten years before he came to our attention. Galezowski [11] reports a case in a child of nine. Weeks [12] concurs in the opinion that true diabetic cataract is extremely rare. During an experience of forty-five years he saw only two or three patients presenting this complication.

That lenticular opacities occur quite commonly in any series of diabetics who have attained middle life, is to be expected, for diabetes of any duration predisposes to degenerations and premature senility. The high incidence of cataracts reported in most statistical studies—Schmidt-Rimpler [13] 45 per cent, and Gradle [14] 53 per cent—must be explained on some such basis. Furthermore, if the occurrence of lenticular opacities be determined in nondiabetics of similar age groups, only a slightly higher percentage in diabetics becomes apparent. Gradle, in a series of nondiabetics between forty-one and fifty years, found 34 per cent to have some degree of lenticular clouding, while between the ages of sixty-one and seventy years the percentage was increased to sixty-eight.

Our study of this group of patients would seem to indicate that although lenticular opacities are an important ocular complication of diabetes, at least in adult life, it is yet to be proved that diabetes plays an important rôle in their production. The lenticular changes bear no distinguishing characteristics that serve to differentiate them from the usual changes associated with senility. Certainly their presence in most diabetics is an incidental finding, and hardly warrants the

assumption that they are of diabetic origin. Furthermore, controlling the diabetes failed to influence favorably the lenticular opacities.

Thirty-seven patients in our series, or 54 per cent, had lenticular opacities, diagnosed with the aid of the ophthalmoscope. The youngest patient was forty-three years of age.

Refraction Changes.—Sudden changes in refraction are seen occasionally in diabetics. These are caused by deviations in the index of the intra-ocular media. Many such cases have been reported. In reviewing the records of our patients, we found that twenty-three were hyperopic, eleven myopic, and thirty-four emetropic. Re-examination of their refractive error revealed no unusual changes other than those due to the presence of progressive senile cataracts.

It frequently has been observed that transient obscuration of vision may occur in diabetic patients with acidosis, and especially in those who have recently passed through a stage of coma. The period of dimmed vision may last a few days or several weeks. This phenomenon probably can be explained on the hypothesis that there is an alteration in the intra-ocular concentration of glucose, since reduction of the glycosuria and hyperglycemia to normal results in restoration of vision to its original acuity.

Changes in Accommodation.—Paralysis of accommodation is usually listed among the complications of diabetes. In fact Parker [15] states that next to cataract, it is the most frequent ocular manifestation of the disease. The sudden appearance of this symptom in a patient otherwise apparently healthy, should suggest diabetes as a possible cause; it has been reported often enough to prove its relationship to diabetes mellitus. In the series of cases under consideration this abnormality was not observed.

It is interesting to note that, in our series, the average age of onset of presbyopic symptoms was forty-seven years. This is quite in keeping with the usual findings in normal individuals. From this it may be concluded that the appearance of early presbyopia in diabetes is only a very occasional finding.

Extra-Ocular Muscle Function Changes.—Extra-ocular muscle palsies have been reported in about four per cent of diabetics. Although carefully searched for, only one was found in this series.

Changes in Perimetric Fields.—The perimetric fields were taken routinely in our patients. This included examination by the perimeter and Bjerum screen. The findings, while interesting, were not unusual. Twelve, or 17 per cent, showed alterations from normal—usually irregular contractions, or scotomata. Abnormalities in the visual field in every case could be explained by such complications as retinitis or lenticular opacities. No case of retrobulbar neuritis was revealed.

Changes in Ocular Tension.—A routine study of the ocular tension proved of major importance, as it revealed nine cases of hitherto unsuspected glaucoma simplex. In diabetes, as in many other conditions, failure of vision is often attributed to the presence of lenticular opacities or retinal changes, whereas the major ocular disease may be glaucoma.

Whether the intra-ocular pressure bears any definite relation to hyperglycemia, is unknown. A study of the literature indicates that only slight interest has been taken in the matter. Gifford [16] states that changes in the intra-ocular tension occasionally occur in diabetes. He has observed a few cases of glaucoma associated with diabetes, but believes these are the result of a vascular lesion and are almost always accompanied by hemorrhages.

That ocular hypotonia is the rule in severe cases of diabetes in coma has been established definitely. This in itself would suggest the possibility of a relationship existing between diabetes and intra-ocular tension. Furthermore, the fact that the intra-ocular tension sometimes increases after the injection of insulin, has been commented upon. E. Marx [17] studied five patients and found that a rise of tension followed insulin administration in three. He believes that the general trend of glycemia and intra-ocular tension, while not exactly parallel, is quite similar. Ascher,[18] likewise, observed the sudden rise of tension in some patients following insulin injection, and suggested that a relationship existed between the water economy of the human organism and the intra-ocular tension.

Table 1 indicates the intra-ocular tension of each of our patients. The tensions were taken by one of us (J. W. C.) with a Shiotz tonometer. If a reading of over 20 millimeters was obtained, the examination was repeated after an interval of a week. If 25 millimeters of mercury (Shiotz) is accepted as the upper limit of normal, there were nine patients in the series with readings above normal; ten others had a tension of 25 millimeters in both eyes.

Whether or not the intra-ocular tension in diabetes is related to the metabolic disorder, we are unable to say. The fact that most of these patients are taking insulin must be considered. No attempt was made to measure the tension before and after insulin administration. However, the presence of an abnormally high tension in nine patients among sixty-eight who had no symptoms of glaucoma is out of all proportion to that usually found in nondiabetics. Unfortunately, the presence of lenticular opacities in many patients disguises the symptoms. The early recognition of glaucoma is so important that it should be sought for in all diabetics who can have the advantage of an eye examination. Possibly, also, all patients with glaucoma should have the advantage of a blood sugar estimation. Certain it is that more studies will have to be made on the intra-ocular tension in diabetes to prove or disprove the existence of a relationship between the two.

COMMENT

From this brief discussion of the ocular findings in a series of sixty-eight diabetics, it seems that very few of the ophthalmic complications associated with diabetes result directly from that disease. In fact, with the possible exception of juvenile cataract and elevation of the intra-ocular tension, diseased conditions occurring in the eyes of diabetics usually may be ascribed to some other cause. However, it can safely be said that many of the ocular abnormalities are indirectly related to the presence of diabetes.

The ravages of this disease are manifold; and probably the greatest of these is the production of a premature senility. This in turn results in an impaired circulation of the entire body. The eye does not escape any more than do the heart or kidneys. Consequently, it is not surprising to find in our studies definite indication that almost all of the ocular diseases found in association with diabetes result from other more generalized complications of that disease. This is emphasized by the data summarized in Table 2. A perusal of this table shows that of the forty-three patients giving evidence of ocular disease, thirty-three, or 77 per cent, had clinical and laboratory evidence of renal impairment. This is shown by either a retention of nitrogenous elements in the blood stream to a point where the N. P. N. exceeds 40 milligrams per 100 cubic centimeters, or the uric acid is above 4.0 milligrams per 100 cubic centimeters, or the phenolphthalein excretion has fallen below 35. Thirty-two patients, or 47 per cent, had obvious sclerotic changes in the blood vessels. It is, of course, realized that the average age of this group of patients is beyond middle life when the normal effects of senility begin to manifest themselves. At the same time diabetes is primarily a disease of late middle life, the average onset occurring at about the age of fifty years. Many changes, therefore, ordinarily found in elderly individuals, may be found in diabetics of similar age or even at a much earlier age, provided the disease has been present long enough for its effects to become manifest. However, the presence of these senile changes, even in young people, is by no means diagnostic of diabetes mellitus. Likewise, it is not to be assumed that the presence of diabetes results, *a priori*, in the production of ophthalmic disease. Many diabetics who have had the disease for years may escape any or all of its complications.

In order to eliminate the effects on the eye of the more generalized systemic pathological changes resulting from diabetes, it would seem advisable to conduct an investigation in all respects similar to that described above, on a group of diabetics, the upper age limit of which would be thirty-five years. In such a group it could be reasonably assumed that the normal changes resulting from old age would be entirely eliminated.

However, until such a study is made it should be emphasized that the occurrence of retinitis, especially if it conforms to the type previously described, or of early cataracts, or of other ocular manifestations frequently associated with diabetes, should immediately suggest the possible presence of this disease. Many cases of unsuspected diabetes will thus be found; and in many instances treatment of the systemic disease may help materially to alleviate the ocular symptoms.

CONCLUSIONS

1. Complete eye examinations were made on sixty-eight diabetic patients ranging in age from eighteen to seventy-nine years, the average age being fifty-four years.

2. An effort was made to ascertain the presence of complicating systemic diseases, particularly renal impairment and arteriosclerosis.

3. Retinitis of a somewhat characteristic pattern was found in 23 per cent of the patients, all of whom had renal impairment, and all but four had generalized arteriosclerosis.

4. Lenticular opacities were diagnosed in 54 per cent of the patients; but no distinguishing characteristics were noted.

5. The average age of onset of presbyopic symptoms was the same as for nondiabetics.

6. There were no characteristic perimetric changes.

7. The intra-ocular tension was definitely increased in 13 per cent of the patients.

8. It is suggested that almost all diseases of the eye found in association with diabetes result from systemic complications of that disease. Two abnormal conditions which may ultimately prove to be exceptions to this statement are juvenile cataract, and elevation of the intra-ocular tension.

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DISCUSSION

GEORGE NEWTON HOSFORD, M. D. (490 Post Street, San Francisco).—I am sure we are all grateful to Doctor Crawford for collecting and classifying these sixty-eight cases of diabetes, showing ocular complications. Such compilations are, of course, the chief value of clinics, but the labor involved is time-consuming and fatiguing.

Doctor Crawford has been careful to draw no general conclusions from the study of this series which are not in accord with the conclusions reached by the studies of similar groups of cases elsewhere.

However, where figures in this series differ widely from those of other similar studies should be pointed out, otherwise the reader unfamiliar with ophthalmic literature might be unintentionally misled.

For example, the incidence of the two most frequent ocular conditions, retinitis and cataract coincide very accurately with other published figures, but in most series the third most frequent complication is retrobulbar neuritis, and I am at a loss to account for its absence in so large a series. I am quite sure it is not due to any lack of observation on Doctor Crawford's part, for those of you who know him know that there is nothing from which he derives such whole-souled pleasure as he does from the contemplation of a central scotoma. He looks for them on all occasions.

In R. Foster Moore's series of sixty-two diabetics, retrobulbar neuritis was found six times where tobacco and alcohol could be excluded with certainty. This is a trifle less than 10 per cent. Von Noorden's series is about the same.

The fact that the youngest patient in this series was eighteen years of age should, of course, not be interpreted as meaning that diabetic cataract does not occur in children, for it does. The occurrence of diabetic cataract in a child of eleven months was reported in 1925. I have seen it in a child seven years of age. In fact, where the traumatic and congenital type can be excluded in the history, diabetes must be the commonest cause of uncomplicated cataract in young individuals.

I find only one statement in the paper, which I should wish to challenge in any way, viz., "that whether the intra-ocular tension bears any definite relation to the hyperglycemia is unknown." This relation is known and known with great accuracy, thanks to the classical researches of Duke-Elder and others. I became interested in the subject when a medical student because of its manifest importance in glaucoma.

I had been fascinated by seeing Doctor Naffziger reduce intracranial pressure by the intravenous injection of hypertonic Ringer's solution, and wondered if it would work in glaucoma and was highly delighted when I found that it would. I then looked the subject up and found that Hertel had employed the method as early as 1915, and in 1917 Sansum had lowered the intra-ocular tension from around eighty to somewhere in the thirties by the intravenous injection of glucose.

Duke-Elder has shown that the concentration of sugar in the aqueous lies between the concentration of sugar in the arterial and venous blood plasma, and others have assumed that it is identical with the concentration in the capillary blood plasma.

However, that is just part of a more general law. Not only does the concentration of sugar in the aqueous equal its concentration in the blood plasma of the capillaries, but all the crystalloid elements in the blood behave in the same way. The capillaries in the eye act as a permeable membrane to crystalloids, but as a semipermeable membrane to colloids, so that any permanent change in the intra-ocular tension must be brought about by alterations in the colloids.

This brings us to the explanations for several of the observations Doctor Crawford just mentioned in passing. These phenomena are due to the upsetting of the water balance that occurs in diabetes. When the organism is unable to utilize sugar it is excreted and it must necessarily be excreted in solution, hence the thirst and polyuria of diabetics. When the thing is carried to an extreme, we have dehydration, which results in the intra-ocular hypotonus, characteristic of diabetic coma.

The administration of insulin would reduce the sugar content of the blood. A corresponding reduction in the amount of sugar in the aqueous humor would follow. This would reduce the osmotic pressure and consequently the intra-ocular tension, provided other factors were kept constant.

*

M. F. WEYMANN, M. D. (2007 Wilshire Boulevard, Los Angeles).—With the slit lamp, Schnyder examined the lenses of fifty-nine diabetics who were affected with cataract, and in only one of them found changes differing from the pure senile form. In this one patient, whose condition he considered specific of diabetes, there was in the early stage a subcapsular layer of very fine vacuoles, both in the anterior and posterior cortex. Later large water clefts and larger vacuoles developed through increased water absorption. A similar case has been described by Meesmann, and I have seen one such case. Schnyder's patient was thirty-three years old, Meesman's thirty-six, and mine forty-five. All of these patients also had a rather severe diabetes. This water absorption, occurring to a lesser degree without the formation of clefts or vacuoles, is probably the mechanism of production of the well-known changes in refraction in diabetes. One such case examined by me showed no change in the lens structure with the slit lamp, so that this type of swelling must occur in the fibers themselves.

*

DOCTOR CRAWFORD (Closing).—In regard to the frequency of retrobulbar neuritis in diabetes, we found no cases, although the perimetric fields were examined routinely; the perimeter and Bjerum screen being used.

Doctor Hosford's remarks on the relationship between the blood sugar content of the blood and the intra-ocular fluids, as explained by Duke Elder, is of great interest. The fact that 13 per cent of our diabetic patients had increased intra-ocular tensions is of considerable importance and will warrant further study.

The entire absence of true diabetic cataracts in the series, is somewhat surprising, although Doctor Weeks says that in forty-five years' experience he has only seen one or possibly two, true diabetic cataracts. One patient in our series had both lenses removed by Doctor O'Connor for cataracts, and he believes these were true diabetic cataracts.

Retinitis was present in 23 per cent of our patients. The great variance in the percentage of retinitis in various diabetic clinics can probably be explained by the fact that not all diabetic patients are examined by ophthalmologists.

ACNE ROSACEA*

WITH PARTICULAR REFERENCE TO GASTRIC SECRETION

By NORMAN EPSTEIN, M. D.
AND
DAVID SUSNOW, M. D.
San Francisco

DISCUSSION *by Garnett Cheney, M. D., San Francisco; Samuel Ayres, M. D., Los Angeles.*

THE purpose of this paper is to report the result of gastric secretion studies in twenty-four cases of acne rosacea; and to give a brief description of the disease itself.

PATHOLOGY

Acne rosacea is not uncommon among skin conditions, comprising about three per cent of all dermatological cases. It occurs more frequently in women than in men, the ratio being three or four to one. This disease may be defined as a chronic congestion of the central two-thirds of the face, which eventually leads to permanent vascular dilatation of that area. There are three fairly distinct phases in the development of the condition. A simple reddening or flushing of the facial skin—which at first is transient, later becoming more persistent—is the earliest symptom. Secondary to the increased circulation in this portion of the face an overaction of the sebaceous glands occurs, which is followed by the appearance of patulous follicles, acne pustules, and patches of seborrhea. In a few instances, in elderly men only, a fibrous tissue overgrowth appears in the subcutaneous portion of the nose, with a resultant enlargement and lobulation of that organ, namely, rhinophyma.

Because the term "acne rosacea" has been somewhat confused with "acne vulgaris," recent writers have preferred to drop the prefix "acne," and refer to the disease simply as "rosacea." The differentiation between these two conditions is quite clear. Acne vulgaris is due primarily to an overaction of the sebaceous glands of the face, neck, chest, and back; occurs in the second and third decades of life, and is characterized by comedos and pustules in these areas. On the other hand, rosacea is a disease of the third and fourth decades of life, and is primarily a vascular disturbance of the central two-thirds of the face, with a secondary overaction of the sebaceous glands.

It is generally accepted that rosacea is due to some internal disturbance, although the exact cause has not been definitely determined. The habitual use of alcohol and the presence of dyspepsia are referred to as important etiologic factors.

The association of eye lesions with rosacea is being reported more and more frequently by ophthalmologists, who find a type of vascular keratitis, corneal ulceration and vascular nodules in the cornea. These ocular complications have not as yet received the proper attention by dermatologists.

ACNE ROSACEA AND GASTRIC DISTURBANCES

The flushing of the facial skin in patients with rosacea is markedly increased in many instances by the ingestion of certain foods into the stomach, such as alcohol, hot liquids and solids, tea, coffee, and highly seasoned foods. The relationship of diet to rosacea, and the association with this disease of certain gastro-intestinal complaints such as flatulence, a feeling of fullness after meals, nausea, lack of appetite, constipation and diarrhea, have caused clinicians to regard the condition as either due to or greatly influenced by altered digestive processes.

During the past ten years, investigators have been approaching the problem from this standpoint, and have emphasized the importance of a study of the gastro-intestinal tract by means of the x-ray and of observations on gastric secretion.

Pathologic changes of the digestive organs associated with rosacea are very infrequent; on the other hand, hypochlorhydria in the gastric secretion occurs in a large percentage of the cases. Studies of gastric secretion have heretofore been made by the fractional gastric analysis, gruel being used as the test-meal.

The published reports of investigators in this field are analyzed in Chart 1.

COMMENTS ON CHART I

In a total of 163 cases of rosacea studied, 57.6 per cent were found to be subacid. A complete

CHART 1.—*Summaries of Some Gastric Analyses*

Reported by	Achlorhydria 0 Free HCl	Hypochlorhydria under 20 Free HCl	Hypochlorhydria 20-30 Free HCl	Normal	Hyperchlorhydria 45+
Eastwood, S. R.	4	11	9	21	5
Rulison, R. H.	7	17	11	10	5
Brown, W. H.	7	8	13	18	4
Ryle and Barber	55	2	....	5	....
Total cases	23	38	33	54	14
Per cent of cases	14%	23.4%	20.2%	33.1%	8.7%
57.6% Subacid					

* From the Department of Dermatology of the University of California Medical School, and the Mount Zion Hospital in San Francisco.

* Read before the Section of Dermatology and Syphilology of the California Medical Association meeting at Del Monte, May, 1930.

achlorhydria was shown in 14 per cent, no free hydrochloric acid being present in any of the specimens taken. A marked hypochlorhydria was shown in 23.4 per cent, the free hydrochloric acid not rising above twenty; while 20.2 per cent did not exceed thirty points of free hydrochloric acid.

As important as the finding of hypochlorhydria in rosacea, is the fact that these authors report that marked clinical improvement is obtained by the internal administration of dilute hydrochloric acid—in many instances to an extent out of proportion to the degree of hypochlorhydria found.

Recent advances in gastric analysis by the introduction of the alcohol test-meal and of the histamin method of stimulating gastric secretion have prompted this study.

The authors treated twenty-four patients, of whom eighteen were females and six males, with a ratio of three to one. Their ages ranged from twenty-seven to seventy-four years; and the duration of the disease varied from one month to fifty years. There was a definite history of alcoholism in two patients, while in three others alcohol had been taken in moderate amounts. In ten patients no alcohol had been taken. Blood pressure findings showed a definite hypertension in five patients, while in only two was the blood pressure below normal.

SUMMARY

A series of twenty-four cases of rosacea is presented. In each patient a gastric analysis was done by the alcohol test-meal method. (In a few instances the histamin method was used also, but these findings are given here in only one case.) The alcohol test-meal offers a standardized method for the study of gastric acidity, and eliminates the various factors leading to the recognized inconsistencies and uncertainties of the Ewald test-meal. The alcohol meal was preferred to histamin injections because of the occasional disagreeable reactions following the latter.

TECHNIQUE

The patient was fasted for twelve hours prior to the beginning of the test. The fasting contents of the stomach were aspirated, and then 100 cubic centimeters of seven per cent alcohol were introduced by means of a large Luer syringe through the Rehfuss tube into the stomach. Ten cubic centimeter samples of the stomach contents were taken at 30 minutes, 60 minutes, and 120 minutes after the introduction of the alcohol. At the conclusion of the test the entire stomach contents were withdrawn. These samples were then titrated with 0.1 normal sodium hydroxid in the usual manner for free and combined hydrochloric acid.

It was necessary that the samples withdrawn from the stomach be clear and contain no bile. In the presence of bile the sample was discarded. The acidity was determined within two hours after withdrawal of the contents from the stomach.

GASTRIC ANALYSIS RESULTS

The results obtained by gastric analysis in these cases of rosacea may be classified according to the degree of free hydrochloric acid found in the gastric secretion. It is difficult to state exactly what constitutes the normal gastric acidity and the normal variation therefrom according to the alcohol test-meal. Previous writers have usually regarded thirty units of free hydrochloric acid in the gastric juice as the lower limits of normal for the Ewald fractional meal. Workers with the alcohol test-meal regard twenty units of free hydrochloric acid as the lower limits of normal. This estimate, which may be regarded as conservative, is used in the grouping of the present data.

Our first group is that in which an *achlorhydria* was present, no free hydrochloric acid being present in any of the specimens. Seven patients, or 29.1 per cent of the total number studied, fell into this group.

Those patients whose free hydrochloric acid was not over ten were placed in the second group of patients with *marked hypochlorhydria*. There were four of these, or 16.6 per cent of the total.

The third group included patients with a *moderate degree of hypochlorhydria*, with free hydrochloric acid above ten and under twenty. There were seven of these cases, or 29.1 per cent of the total. One patient is included here whose gastric secretion was obtained after histamin (78), the normal acidity range by histamin being 90 to 125.

The fourth group, or the *low normal*, in which the free hydrochloric acid did not go over thirty, included three patients, or 12½ per cent. It should be noted that other reports have regarded this group as showing a slight hypochlorhydria.

Three patients were normal, the free hydrochloric acid being between thirty and fifty, or 12½ per cent.

Chart 2 shows these findings.

CHART 2.—*Gastric Secretion Studies*

Gastric Secretion	No. Cases	Male	Female	Per Cent of Total
Achlorhydria—No free HCl	7	4	3	29.1%
Marked hypochlorhydria—Free HCl under 10	4	1	3	16.6%
Hypochlorhydria—Free HCl under 20	7	1	6	29.1%
Lower limits of normal—Free HCl under 30	3	0	3	12.5%
Normal free HCl, 30-45	3	0	3	12.5%
Hyperchlorhydria 45+	0	0	0	0.0%
75 per cent Subacid				

COMMENTS ON CHART 2

Considering the series as a whole, eighteen cases, or 75 per cent, were very definitely in the hypochlorhydria class, while three others, or 12½ per cent, were in the lower limits of normal. These figures are somewhat higher than reported by other investigators, who found 57.6 per cent of rosacea patients as subacid. Hypochlorhydria is a finding common to a variety of diseases, among which may be mentioned pernicious anemia, subacute combined degeneration of the spinal cord, pellagra, sprue, infectious arthritis, etc.

The significance of this finding in rosacea can be estimated by the clinical results obtained by the internal administration of dilute hydrochloric acid, which was given in teaspoonful doses in a large glass of water with meals. In the majority of the cases there is an immediate response; the intense flush subsides, acne lesions tend to disappear, and the patient feels better generally. The mild types of the disease do not seem to improve as rapidly as the severe ones. While the patients with complete achlorhydria derive most benefit as a rule, often the extent of improvement is out of proportion to the degree of hypochlorhydria. Patients with normal findings are also benefited by dilute hydrochloric acid. In the present series, we have had the opportunity of following the course of the condition for several months in fifteen cases while they were taking the hydrochloric acid. Of these, thirteen made a 50 to 75 per cent improvement. Two did not improve at all. None of the patients were, however, completely relieved of their symptoms.

Complete cure of rosacea is reported in many instances by certain investigators by the use of dilute hydrochloric acid internally in combination with other therapeutic agencies, namely, the regulation of the diet with the omission of alcohol, highly seasoned foods, tea, coffee, and hot liquids; relief of constipation; local applications to the skin; x-rays and ultra-violet rays; and destruction of enlarged superficial vessels in the skin.

While we have not seen complete relief of the rosacea in our cases which have, perhaps, been under observation for too short a time, a flare-up of the condition has been noted when patients neglect their intake of hydrochloric acid for a few days. From a clinical standpoint, there seems to be no relation between the degree or hypochlorhydria and the severity of the rosacea.

COMMENT

The standardized technique of the alcohol test-meal affords an accurate means of determining gastric acidity. If employed by other investigators, valuable data will be obtained for clinical analyses.

Gastric secretion findings in this series of rosacea cases emphasize the frequency with which hypochlorhydria is associated with this disease. Clinical improvement following the internal administration of dilute hydrochloric acid links this finding closely to the pathogenesis of the disease.

Hypochlorhydria is a finding present in too many conditions to regard it as the causative factor in any one disease.

CONCLUSIONS

1. A marked hypochlorhydria was demonstrated in 75 per cent of this series of cases of rosacea.

2. Definite clinical improvement followed the internal administration of dilute hydrochloric acid.

450 Sutter Street.

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DISCUSSION

GARNETT CHENEY, M. D. (210 Post Street, San Francisco).—The association of lesions of the skin and mucous membranes with low or absent free acidity of the stomach is well recognized, but very little understood. The relationship is difficult to explain because the great majority of people with true achlorhydria do not have skin lesions. I have several times noted marked improvement in aphthous stomatitis and chronic eczemas following the administration of dilute hydrochloric acid, occasionally only after far larger doses than Doctor Epstein has used. Four or eight cubic centimeters three times a day might have produced a great improvement in some of his patients. It is a pleasure to note that his investigation is based on a correlation between dermatology and internal medicine.

❀

SAMUEL AYRES, JR., M. D. (2007 Wilshire Boulevard, Los Angeles).—The authors have confirmed the observations of many other investigators regarding the causative relationship between gastric hypochlorhydria and many cases of acne rosacea. I have had no personal experience with the alcohol test-meal. Unless it can be shown that this method has very decided advantages over the Ewald test-meal, the latter would seem preferable inasmuch as it approaches more nearly the normal daily stimulus. Also the microscopic evidence of the degree of chymification obtainable with the Ewald meal is confirmatory of the degree of titrated acidity. I am glad to hear the authors recommend the use of dilute hydrochloric acid rather than large quantities of citrus fruit juice in the treatment of their patients with hypochlorhydria.

Some of the cases of rosacea with normal gastric secretion, will be found to be caused by an excessive infestation with the *Demodex folliculorus*, a worm-like insect which inhabits the sebaceous ducts. During the past two years we have encountered at least twenty cases of rosacea in which large numbers of Demodex were found microscopically in pus and follicular scales, and which were cured by the application of a strong parasiticide such as is used in scabies. Simultaneous with the clinical improvement there was a disappearance of the Demodex on microscopic examination. Most of these patients were women, and many had forsaken the daily use of soap and water for cleansing creams which may have favored the abnormal development of the Demodex. A detailed report of these cases will be published in the near future.

FEMORAL CONDYLITIS*

REPORT OF CASES

By MERRILL COLEMAN MENSOR, M. D.
San Francisco

DISCUSSION *by James T. Watkins, M. D., San Francisco; E. W. Cleary, M. D., San Francisco.*

IN the past year I have encountered two rather unusual cases, the first being of a puzzling nature as to the matter of therapy and accurate diagnosis. The second, following about three months later, showed such a parallelism, both from the history and physical findings, that the writer was led to inquire among his colleagues and to look up the literature rather thoroughly in hopes of finding a syndrome under which these two cases could be classified. To date he has been unsuccessful in this matter, but believes the symptoms and signs are so definite that for the purpose of description he shall term them "femoral condylitis."

REPORT OF CASES

CASE 1.—Mr. H. C. A. Rancher, forty years of age. Referred by Doctor Scarborough.

Complaint.—Pain and soreness of the right knee.

History.—About three days before admission, without known trauma, the patient suddenly developed a sharp boring pain on the outer side of the right knee which was accentuated by weight bearing or attempted motion of the knee-joint. He was able to walk with difficulty and only with a pronounced limp.

Past history: The patient's past history was negative except for a severe tonsillitis about three weeks previous from which he had entirely recovered.

Examination.—The knee was held slightly flexed and attempts at motion, either active or passive, elicited severe pain. There was no increased mobility of the knee-joint or gross deformity of same. There was no increase in joint fluid. Along the external condyle of the femur, about two centimeters above the joint line, was a localized area of tenderness with a small amount of pitting edema and slight increase in the local temperature. The rest of the physical examination, both as to the limb and to his general condition, were absolutely negative. Blood picture showed 13,200 white blood cells with 85 per cent polymorphonuclear leukocytes. Temperature showed an average elevation of about one degree.

X-Ray (Stanford University Hospital).—The x-ray examination showed a small defect over the external condyle about two millimeters in diameter with a small calcified mass about the same size adjacent to it in the soft tissue.

Doctor Chamberlin diagnosed this as a small avulsion fracture of the condyle.

Treatment and Course.—Because of our laboratory and clinical findings and the persistence of localized pain, which we believed to be of an inflammatory nature, an osteotomy was done on the third day. At operation there seemed to be some increased hyperemia about the site, the periosteum was not elevated and there was no free fluid either serous or purulent. After culture was taken the wound was closed without drainage, the patient discharged from the hospital on the tenth day, his temperature having dropped to normal on the day following the operation. The wound healed by second intention, there being a slight apparently superficial suppuration which lasted for about three days. At this time there was no soreness or tenderness present, and the patient had a full range of motion in the knee-joint. As far as we can ascertain a year later, there has been no further trouble or disability. A culture from the operative wound showed *Staphylococcus albus.*

Comment.—The second case, occurring just a few months later, was so familiar in all respects that it led me to believe we were dealing with a definite clinical entity, and I profited by my former experience by varying treatment, for the better, I believe.

* * *

CASE 2.—Mr. W. C. C. Steward. Referred by Dr. T. D. Meagher.

Complaint.—Painful right knee.

History.—In April 1929 the patient suddenly developed a soreness on the outside of his right knee which became progressively worse, and a day later, while kneeling, the pain became so severe that he could not maintain this position. On attempting to stand he was unable to place his weight on his feet. He was removed to his home, complaining of a constant sharp pain in the knee; any motion, and even pressure of the bed clothes, caused extreme pain.

Examination.—The examination was negative except for localized tenderness over the external condyle about two centimeters above the knee-joint, with a smaller amount of edema, redness, and increased heat. Motion of the knee-joint in any direction was impossible because of the extreme pain and spasm.

The temperature was 100.6 degrees F. Blood count 12,500 leukocytes, with 75 per cent neutrophils.

X-Ray (St. Luke's Hospital Report).—There is a chip fracture and periosteal tear of the lateral condyle of the right femur. There is no soft tissue swelling or periosteal thickening in this region.

Course.—The limb was elevated and the pain controlled by opiate and constant heat applied to the leg. The temperature gradually dropped, becoming normal on about the fifth day. The pain and tenderness gradually disappeared, with motion of the joint increasing daily. At the end of a week there was free range of motion, no pain on weight bearing, and the patient had entirely recovered. He was followed at intervals for about two months and there was no return of the symptoms or further findings referable to this condition.

COMMENT

It is with no small amount of timidity that the writer essays to call this to your attention as a definite clinical syndrome. No doubt many colleagues will state that the x-ray appearance in these two patients was due to a small avulsion fracture and, as a natural sequence of events, a patient suffering a trauma of this type would be more or less disabled and have considerable pain. In answer to this, it would seem that the evidence presented is so overwhelmingly in favor of an inflammatory process that the former issue can really be dismissed. Trauma, as far as can be elicited by careful and repeated interrogation, can be definitely excluded.

* From the department of orthopedic surgery, Stanford University Medical School.

* Read before the Industrial Medicine and Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

In this condition are found all the signs of an acute inflammation: fever, leukocytosis, local tenderness, and edema with increased elevation of temperature of the affected part. Studying the first case in retrospect, in light of then available knowledge, we can readily see that our differential diagnosis, with injury and joint involvement eliminated, would simmer down to a possible osteomyelitis of the femur. It was on this provisional diagnosis that the operative procedure was advised, and with no little chagrin the writer found the presence of pus to be conspicuous by its absence. This would have done nothing more than have shown inadequacy as a diagnostician had not the second case come under observation, exactly parallel in all its findings.

If present conceptions regarding bone inflammation are correct, this condition can be attributed to a localized infection having a peculiar selectivity for the femoral condyle. The writer is at a loss to explain the significance of the x-ray findings. The question whether the organism recovered in the first operative procedure was the etiological factor or merely a contamination, is open to discussion and can only be cleared up in light of future experience.

However, with an infection of apparently such a low virulence, operative procedures would hardly seem to be indicated and the treatment followed in the second case would probably be the more logical. The medico-legal aspect of this condition, especially in its relation to industrial medicine, is important. Most of us, having a workman report to our office complaining of pain in his knee, may be led to a hasty conclusion of injury by the x-ray interpretation of the condition. However, if we stop to consider the severity of the symptoms as characterized by the acute illness and pain of the patient, in contrast with the minimum roentgenological findings, we should not be led astray.

490 Post Street.

DISCUSSION

James T. Watkins, M. D. (909 Hyde Street, San Francisco).—I can add only one case to Doctor Mensor's list. Some time before the war I saw a nun who presented identical symptoms and a strikingly similar x-ray picture. Without a history of trauma, she first noticed the pain in the external condyle of the right knee as she was getting up from her devotions. Thereafter motion was markedly curtailed and exceedingly painful. X-ray examination showed an elevated piece of bone about as thick as a millet seed at, I should say, about the point where Doctor Mensor noted his. There was mild tumefaction and tenderness to palpation over it. It did not occur to me to have a blood count, nor did I look for a rise of temperature—though both might be present following a break—because I at once thought of a small cortical fracture; but I did advise immobilization.

I have wondered if the following anatomical fact could have any significance. Examination of the lower articular surface of the femur shows that it is formed by chords of the arcs of two circles of which the posterior, or lesser, has its center in the femoral condyle, while the center of the larger is well up on the shaft of the femur. Now at the instant that the head of the tibia passes from the lesser to the greater curve, or vice versa, the mechanism of joint motion is changed and an added stabilizing strain thrown upon some one point which may well be the spot where Doctor Mensor and I noted these changes in the x-ray. It is an interesting speculation.

There was an interesting sequel to my case. Soon afterward this good soul placed herself under the care of a surgeon in another town among whose recommendations was a theology more orthodox than my own. He cut down on the thing, it became infected, and she developed a stiff knee, which, of course, interfered with her comfort while at her devotions.

To summarize: I have not proved Doctor Mensor wrong; nor has he proved himself right. The lesson from our combined experiences is that the thing, whatever it is, should not be operated upon.

I think that both he and we are to be congratulated upon what I might term the intellectual honesty of his presentation. Papers like this which frankly set forth clinical fact in their summation help us to get farther along the road we all are going.

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E. W. Cleary, M. D. (490 Post Street, San Francisco).—I have seen perhaps as many as six cases of painful knee where the x-ray showed a shadow of calcareous deposit or small bony fragment over the external femoral condyle. In all such cases that I have seen, in every instance several weeks had elapsed since the incidence of painful knee before I saw the patient. None showed local edema, but several had localized tenderness to pressure over the area beneath which the x-ray showed the peculiar shadow. All were cases of alleged industrial injury to the knee.

I have never been entirely satisfied with the diagnosis of periosteal tear or chip fracture of the condyle as an explanation of the x-ray picture in these cases, but it has not been my fortune to see any of the cases soon enough after the onset of the condition to have a good opportunity to draw conclusions. I have never cut down upon one, though I confess to a curiosity to see just what the mass was which cast the peculiar x-ray shadow and where it lay in the soft tissues. It would be interesting if Doctor Mensor had told us what were the relations and the characteristics of the calcareous mass in the patient upon whom he operated.

Possibly the pathology in these patients is of a nature similar to so-called subdeltoid bursitis.

We are indebted to Doctor Mensor for directing our attention toward this interesting condition and for the careful detail of his observations and case records.

*

Doctor Mensor (Closing).—In each of these patients. trauma if present was so minimal as to almost preclude that a fracture could give the findings of increased temperature, leukocytosis, and the other signs of inflammation which were noted. In my opinion, it is rather unlikely that the anatomical facts so lucidly noted by Doctor Watkins could be of much significance because also in this factor it is necessary to get a definite strain on the joint. I think all of us will heartily agree that these patients should not be operated upon.

I, like Doctor Cleary, am greatly interested in the relationship of the x-ray defect and its significance in relation to the bony structure. However, as we operated on our first case under several apparent misapprehensions, we were unable to determine the relation of the characteristics of the calcareous deposit as we hope to do in the future should another case come to our attention.

THE LURE OF MEDICAL HISTORY

COMPARATIVE RELIGIOTHERAPY*

By W. H. MANWARING, M. D.
Stanford University

PART II

DEVELOPMENT OF MEDICINE SINCE THE CHRISTIAN ERA

Greek Medicine at Opening of Christian Era.—This is a composite picture of our ancestral medicine at the opening of the Christian era. To one advanced culture, however, this spiritual wizardry was already obsolete. The Homeric septic devils and antiseptic gods had long since degenerated into abstract concepts,[18] in official Greek medicine, though still retained as lucrative living spirits by Greek charlatans and quacks. By the opening of the Christian era, Greek science had spent five centuries collecting data for a new therapeutic art, based solely on the known and verifiable facts of the material world.

At one stage in the evolution of this new science, each tangible object was analyzed into its hypothetical basic elements. Four elements were postulated: *Earth*, with its hardness, dryness, and coldness; *Water* with its coldness and wetness; *Air* with its dampness and warmth; and *Fire* with its dryness and heat. Blood, for example, was Heat and Water chemically conjugated to form a new unit fluid. At need, this synthetic unit could dissociate into fire to warm human flesh and water to dilute its hardness. All diseases were explained as quantitative errors in one or more of these basic elements, therapy being a logical restoration of normal elemental balance.

This material science, however, was far from being atheistic. Each element was endowed with conciousness. Each obeyed the omnipotent, omnipresent Laws of Supreme Nature. Nature was pictured as a Divine Spirit, though not of anthropomorphic personality.[19]

This Divine Spirit also had dominion over certain minor nature gods. All plants, for example, were at one stage of Greek science synthesized under one great Botanical Spirit, and all animals subjected to a unit Zoölogical Will. Human semen, for example, was pictured as inert mineral life. This seminal wax was later vitalized by botanical spirit breathed in by the mother, conferring upon the static jell the vegetative functions of assimilation and growth. As the resultant intra-uterine fungus reached natal size, it was animated by maternally inbreathed zoölogical purpose, supplementing the vegetative functions with animal functions of sensitivity and motility. After birth the human animal gradually acquired rationality and articulate speech by the inbreathed mentality of Supreme Nature.[20]

In their practical applications, these spiritual concepts of Greek biology were in marked contrast with the discarded Homeric myths. Omnipotent Nature was not handicapped with human passions, ambitions, weaknesses, jealousies, or inferiority complex. She was above flattery and beyond intimidation, could not be conjured into holy symbols, and from her could be purchased no hygienic indulgence. Pathogenic devils were nonexistent. Pestilences no longer fled from priestly hands. Diagnoses were no longer stamped on sacrificial viscera. Nature's only hygienic cooperation with man was her own inbreathed rationality, endowing him with potential mastery of famine and pestilence.

Replacement of Greek Duties by Christian God.—This cold impersonal nature goddess was in time replaced by anthropomorphic Christian deities. Since Greek medicine denied the existence of anthropomorphic gods, it was an enemy of the Christian faith, which retaliated by regarding Greek materialistic logic and technique instruments of Satan.

The fathers of the church, therefore, logically rejected material therapy.[21] Eight centuries of laboriously collected anatomical and clinical data were burned in the public square.[22] The therapeutic magic of Greek and Roman charlatans was resurrected as the official healing art of Holy Church, the newly available Christian gods being substituted for the previously juggled Homeric myths. The only logical approach to the antiseptic deities was through the Church. The only logical remedies were holy signs, sacred symbols, the laying on of priestly hands, prayer, confession, exorcism, and other Christianized versions of earlier pagan curative rituals.[23]

The next thirteen centuries constituted the most important research period of all medical history. Not a conceivable heathen technique that was not tried with the newly available Christian trinity. Wine, water, and oil, ceremoniously vitalized with Christ spirit, were tested, retested and again retested as an agricultural fungicide, insecticide and artificial fertilizer. The flesh of Christ in transubstantiated wafer was tried, retried, and again retried as an antiseptic, antitoxin, cathartic, and abortifacient. Biblical texts were swallowed as logical vermifuges, emetics, and aphrodisiacs.

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* Popular lecture, Stanford University School of Medicine, San Francisco, January 9, 1931. For Part I, see July issue.

18 Barfield, O., History of English Words, Chap. V, p. 79, et seq.

19 Taylor, H. O., Greek Biology and Medicine, Chap. I, p. 9. 1922.

20 Singer, C., Short History of Medicine, Chap. I, p. 33.

21 Allbut, C., Greek Medicine in Rome, The Fitzpatrick Lectures, p. 402.

22 Singer, C., Short History of Medicine, p. 60.

23 Medicine remained an official function of Holy Church, till "the ignorance and cupidity of monks caused the Lateran Council, under the pontificate of Calistus II, A. D. 1123, to forbid the attendance of priests and monks at the bedside of the sick otherwise than as ministers of religion." Full separation of medicine and theology, however, was not effected till a century later, when Innocent III granted "physicians" (i. e., priests and monks practicing medicine) permission to marry, thus effectively barring them from churchly functions (Pettigrew, T. J., On Superstitions Connected with the History and Practice of Medicine and Surgery, p. 33, 1844). The Church, however, officially continued, for at least five centuries, to coöperate with anointed monarchs in ceremonious healings by laying on of kingly hands. "Ye king strokes their faces with both hands, at which instant a chaplain in the formalities says, etc." (Ibid., p. 143.)

The Holy Ghost was repeatedly broadcast from consecrated chimes as a logical specific for demon-ridden tempests, locusts, and miasmas. Satan-consubstantiated bulls were tortured in the bull-ring to telepathically induce terror in famine and pestilence. The roast flesh of satan-consubstantiated witches was eaten as a logical vaccine against sin, leprosy, and bubonic plague.[24] Heroic physicians went so far as to become voluntary servants of Satan that they might gain control over minor pathogenicities.[25] Self-sacrificing priests transubstantiated God into His holy symbols, ground Him under their heels, defiled Him with dung, sputum, and urine, even damned Him to Hell for His therapeutic incompetence.[26] Until medical leaders were convinced that the omnipotent Christian Trinity could not be harnessed, juggled and exploited by ancient heathen techniques, that the God of Judea meant exactly what He said when He condemned the seed of Adam for all time to gain control over the material world by its own unaided efforts.[27]

It cannot be overemphasized that this revolt against ecclesiastical healing was not due to altered pathological theory nor to loss of religious faith; but solely to sincere conviction that such adopted heathen wizardries are contrary to Divine Will.

A very humiliated medical profession now returned to a study of the material world that materialistic techniques might be devised to thwart satanic will. Within two centuries Renaissance science had recapitulated the history of Greek philosophy, and had ended by postulating a material body under the dominion of a triune human soul. This medieval soul was a coöperative colony of three major spirits: a botanical spirit in the liver, vegetizing human flesh through the ebb and flow of venous blood; an animal spirit in the heart, sensitizing and motivating human flesh through arterial wind and tide; and a rational, voluntary divine spark in the brain, telegraphing commands to lower flesh through hydraulic signals in hollow nerve fibers.[28]

This triune medieval soul was slightly modified by the later discovery of circulation,[29] by disproof of the hydraulic theory of the nerve impulse,[30] by the altered view of respiration,[31] and the discovery of sensory-nerve reflexes.[32] No serious conflict, however, took place with the Renaissance theology till the perfection of the compound microscope. Man was now revealed, not as homogeneous flesh of different textures or weaves,[33] but as an organized world of ten million billion microscopic animalcule. Either the human soul must be divided into ten million billion micro-souls, as has been done in certain progressive Asiatic religions, or else the soul is but a philosophical abstraction, the hypothetical intangible democratic government of ten million billion soulless carnal units.

Nineteenth century physiology was wholly unprepared to deal with either postulate.[34] For nearly a century "God," "soul," and "divine spark" and all conventional theological synonyms have been obsolete in technical clinical literature.

Is Modern Medicine Atheistic?—Whether or not this absence of theological terminology is a denial of "God" and the "human soul," as certain "fundamentalists" currently allege, can only be judged by biological initiates. Perhaps a partial translation of two or three typical materialistic phenomena into the conventional metaphor of the church may lead them to a truer perspective.

Most food proteins are toxic if introduced directly into living human flesh. Chemists have shown that food proteins are broken down into simpler chemical substances in the digestive tract, and that the end-products of such digestion are relatively nontoxic. Digestion, therefore, is a *purposeful*[35] change of potentially toxic food proteins into nontoxic digestive products.

The human alimentary canal is lined with a living colloidal membrane, somewhat similar to the transparent cellophane sheet of commerce, fish-bladder being a closer approximation. Laboratory tests have shown that such membranes will not hold back water, salts, simple sugars, or the final products of gastro-intestinal digestion. They do hold back quantitatively, however, undigested food proteins. The colloidal membrane lining of the alimentary canal is, therefore, a *purposeful* mechanical filter, *specially designed* to allow the absorption of nontoxic digestive products, but to exclude from living flesh undigested and potentially toxic food proteins.

Since the *Creative Purpose* was and is omnipotent, it follows that this gastro-intestinal mechanical filter must have been *planned* without structural defects. Undigested food proteins, therefore, are never absorbed from the intestinal contents, except as a result of injury or erosion of the gastro-intestinal mucosa. Without experimental proof or disproof, this theological *perfectionism*[36] was endorsed by nineteenth century physiology. For over half a century it was taught unchallenged in every medical school of the civilized world.

Probably the most striking deduction from theological faith, however, is found in the field of hematology. Nineteenth century biochemistry showed that human blood differs from the bloods

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24 Christianized cannibalism continued among Teutonic races till the time of Charlemagne.

25 One outstanding proponent to this technique was Dr. Michael Scot, who prepared for the practice of the therapeutic Black Art by several years' study among Mohammedans and Jews (Singer, C., Short History of Medicine, p. 68).

26 For the two best known types of this "disciplinary mass," see: Frazer, J. G., The Golden Bough, p. 53, et seq.

27 Genesis, iii, 19.

28 Singer, C., Short History of Medicine, p. 121.

29 Ibid., p. 110.

30 Ibid., p. 143.

31 Ibid., p. 155.

32 Ibid., p. 207.

33 Ibid., p. 219.

34 Numerous other biological phenomena are also beyond the range of materialistic hypotheses, the phenomena of consciousness, memory, and hereditary transmission of animal instincts, for example.

35 "Entelechy" (i. e., "indwelling purposiveness") was the Aristotelian synonym for the "human soul" (Singer, C., Short History of Medicine, p. 33, 356).

36 The Aristotelian "soul" or "Entelechy" may also be translated as "indwelling perfectability."

of lower animals, a demonstration of human serum-protein specificity being sufficient to send a man to the electric chair. Since God is immutable in His plans and purposes, human serum specificity today must be identical with that of the first created man. For forty years this deduction was unchallenged in medical literature.

Nineteenth century bacteriology demonstrated that convalescent human bloods contain specific antidotes for infections from which patients have recovered. Since human blood is static in its divine perfection, it follows that these specific antidotes must have been contained in the blood or tissues of the first created man, together with automatic mechanisms increasing each antidote in time of need. The tissues of Adam, therefore, contained specific antidotes for diseases and toxicities that man was predestined to meet fifty milleniums later, when Adam's remote descendants first migrated to America or came in contact with the synthetic toxicities manufactured today by Avery and Landsteiner. Without experimental proof this Calvinistic immunological *foreknowledge* was taught in practically every medical school of the civilized world, the basic axioms for a hundred diagnostic and therapeutic deductions.[37]

Probably the most striking demonstration of religious faith in so-called materialistic science is furnished by the current atheistic movement in Russia. It has been easy for Soviet leaders to murder priests and dismantle churches, but the elimination of "God" and the "human soul" from biological science has been beyond their power. The assumption that specific antidotes for predestined diseases were not contained in Adamic flesh has but forced Bolshevik immunology to postulate omniscient *primordeal antidotal potentials,* a mere shift from Calvinistic immunological predestination to immunological free will or evolutionary self-determination.[38]

The assumption that hormones are not *purposeful* servants of a unit "soul," has but replaced the previously postulated imperialistic "entelechy" with a republican form of cytological administration, under which communistic regimes common labor cells are raised to an equality with the royal cells of the cerebellum.

In a hundred materialistic metaphors Soviet biology disguises its retained religious faith. In spite of their camouflage as "functions," "tendencies," "potentialities," "syndromes" and "entities," "God" and the "human soul" still remain its basic biological axioms. Russian biology today is the conservative branch of Soviet official atheism.[39]

The Basic Therapeutic Law.—The last five humiliating centuries have taught nordic medicine one great lesson—the necessity of constant skepticism of its own theories and apparently logical deductions. Official medicine today endorses no therapeutic logic, however plausible, till it has been subjected to crucial, impartial clinical verification.

The organized medical profession, therefore, has a right to ask the same preliminary research trial of all proposed religiotherapeutic techniques before they are exploited with a technically untrained general public.

Stanford University.

37 Manwaring, W. H., Sci. Month., xxv, 362. 1927.

38 Manwaring, W. H., Sci. Month., xxx, 352. 1930.

39 "There are two schools of philosophy in Russia, one of which is committed to atheism, the other may make room for a possible future theism" (Eddy, S., The Challenge of Russia, Chap. IX, p. 162. 1931).

CLINICAL NOTES AND CASE REPORTS

LEUKEMIC BLOOD PICTURE WITH ROENTGEN CHANGES IN THE BONES*

By ROLLA G. KARSHNER, M. D.
Los Angeles

A WHITE male American infant, two years nine months of age, was admitted to the Children's Hospital December 7, 1930, because of pain and swelling of the left forearm, just below the elbow, and a slight persistent fever of three days' duration. Several days previous to the onset of the pain the child had had a slight cold.

Physical examination revealed a tender, slightly swollen forearm, with local heat and no redness. The liver edge could be felt, the spleen was not palpable. The hemoglobin was 45 per cent; red blood cells, 3,000,000; white blood cells, 7850; polymorphonuclears, 15; lymphocytes, 83, the majority of which were immature cells. There was one monocyte and one unclassified cell. The red blood cells showed anisocytosis, achromia, microcytes, macrocytes, and polychromatophilia.

The diagnosis was acute osteomyelitis.

On December 8, 1930, an incision three inches in length was made over the upper part of the ulna, the bone was exposed and three holes were drilled into it. It was reported that no pathological material was encountered. The wound was packed with vaseline gauze and a dry dressing was applied. No cover-slip smear or culture was made and none of the bone marrow was sent to the laboratory for examination. The wound healed by first intention; the child was discharged as improved on December 15, 1930.

On January 6, 1931, the child was readmitted with the complaint of fever and vomiting of three days' duration. Blood had been noticed in the stools. Physical examination showed a pale, well-nourished infant, skin slightly yellow, with hemorrhages into the lobes of the ears and petechiae over the back, shins, and buttocks. The mucous membranes were pale. Numerous small glands were palpable in the cervical, axillary and inguinal regions. Over the scalp were a few tiny, palpable nodules. The heart showed gallop rhythm. There was a soft systolic murmur over the sternum and a thrill in the vessels of the neck. The liver was four f. b. below the costal margin at the anterior axillary line. The spleen was four f. b. below the costal margin, of firm consistency and not tender. A blood transfusion was performed January 10, 1931. The child gradually became worse with continued high temperature ranging from 102 to 106, and died on January 10, 1931.

The Wassermann, Kahn, and tuberculin tests were negative. The urine was negative. The table which is submitted shows the nature of the blood counts.

* Read before the Radiology Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931.

TABLE 1.—*Blood Counts on Different Days*

	1-6-31	1-7-31	1-9-31	1-14-31	1-16-31
Hemoglobin	34%	30%	30%	30%	28%
Red blood cells	1,860,000	2,140,000	1,960,000	1,830,000	1,670,000
White blood cells	19,400	18,650	15,300	1,750	1,650
Polymorphonuclears	2	1	1	6	15
Small lymphocytes	97	25	27	28	18
Premature lymphocytes	.....	68	67	50	48
Lymphoblasts	.....	1	2	8	9
Eosinophils	.....	.....	.....	1	.....
Basophils	.....	1	.....	.....	.....
Monocytes	1	.....	.....	3	.....
Myelocytes	.....	.....	.....	.....	4
Unclassified	.....	4	3	4	6
Platelets	41,000	57,000	.....	.....	.....

Achromia, anisocytosis, poikilocytosis, macrocytes, microcytes.

Roentgen examination of all the bones, made on January 7, 1931, revealed periosteal proliferation involving the upper end of the left ulna, beneath which there was some destruction; finely porous destruction at the lower metaphyses of both bones of each forearm; periosteal proliferation about the upper end of the shaft of the left humerus with a large destructive lesion involving the underlying metaphysis. Finely porous destruction of the metaphyses of both humeri, of the ribs, of the bones of the pelvis and of the upper ends of the femora was also noted.

The roentgen diagnosis agreed with the clinical and laboratory diagnosis of a blood dyscrasia, resembling the aleukemic type of acute lymphatic leukemia. Autopsy was denied.

This case is similar in blood, roentgen findings and clinical course to five others encountered at the Children's Hospital in the past few years. Autopsy was performed in four, all showing lymphatic infiltration within the internal organs and bones. In one the diagnosis stands on the records as lymphosarcoma, though no gross tumors were encountered and the clinical, blood and roentgen picture were identical with the others. In another case one pathologist said leukemia, a second called it lymphosarcoma, a third was noncommittal. In the literature were found the reports of two similar instances of bone changes in infants and young children, one designated chronic lymphatic leukemia,[1] and the other reported as myeloid leukemia.[2] To these I added a third under the title of lymphatic leukemia.[3] I am not prepared to defend the diagnosis of leukemia in these cases. Perhaps they were lymphosarcoma.

This brief report has been presented for three reasons. It calls attention to a not uncommon clinical condition in infants and young children in which a blood picture simulating leukemia is associated with roentgen findings in the bones consisting of a finely porous destruction, gross destructive lesions, and periosteal proliferation. Second, it emphasizes the wisdom of heeding an unusual blood count before operating for osteomyelitis. In the third place, it shows the importance of a roentgen examination prior to operation for osteomyelitis.

510 South Lucas Street.

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AN ANOMALY OF THE UMBILICAL CORD

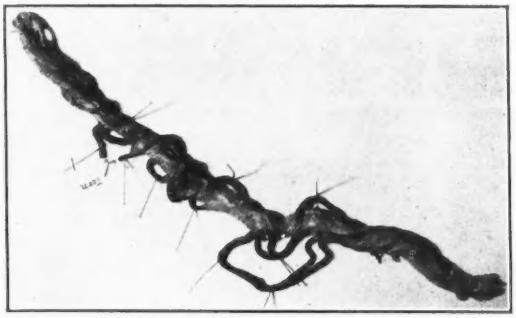
REPORT OF CASE

By F. F. ABBOTT, M. D.
Ontario

LAST July I had a case of death of the fetus three days before birth, due to what appears a very unusual anomaly of the umbilical cord. A search of available literature fails to reveal a similar case. Francis J. Browne, M. D., in the *Journal of Obstetrics and Gynecology* of the British Empire, Vol. 32, No. 1, pages 17-47, 1925, lists twelve different abnormalities with a review of the literature and gives an extensive bibliography.

His list is as follows: True knots on the cord; cord encircling and compressing the child's neck; torsion of the cord; localized constriction of the cord; syphilis of the cord; absence of the cord; localized varicosities; ulceration of the cord; hematoma of cord; cysts of cord; solid tumors of cord (eight cases); and malformed vessels—one artery, no vein, numerous capillaries, jelly of Wharton denser than usual. Capillaries had ruptured here and there, and blood effused in stroma. No syphilis evident.

My case can be listed under malformed vessels, but differs decidedly from the case described by Doctor Browne. In that case there was one



Umbilical cord, showing arteries in festoons and loops.

artery and no vein, the place of the vein being taken by numerous capillaries. The Jelly of Wharton was described as being denser than usual. In my case, Wharton's jelly was very scanty, the probable reason for the anomalous course of the blood vessels.

REPORT OF CASE

Case History.—Mrs. P. B. S., Ontario, California; age, twenty; married. Occupation, housewife. Examination, June 21, 1930. Weight, 235 pounds. Pregnant. Had slight occipital headache.

Measurements.—Anterior spines, 22 centimeters. Crests, 32 centimeters. External cong., 22 centimeters.

Urinalysis.—Negative for albumin, sugar, acid in reaction, and no pus.

False labor occurred about the first of July, lasted twenty-four hours and then ceased entirely.

On the 18th of July, I was called at 9:30 a. m. The patient gave the following history:

About 4 p. m. the previous day, labor pains started and patient passed a little blood several times and was still passing some when seen. The pains increased in frequency and strength during the night. At 9:30 a. m., pains occurred every three minutes. The patient stated she had not felt life for three days. Fetal heart tones were not distinguishable.

Vaginal Examination.—No dilatation. The cervix effaced, placenta not found presenting. The head of the baby is against the cervix in the left occipito-posterior position. The pains continued to get stronger and more frequent, until at 10 o'clock p. m. they were coming every minute or minute and a half and lasting from forty to fifty seconds, with no progress whatsoever in dilatation and no more discharge of blood. The uterine contractions were very strong and, as apparently all of the amniotic fluid had leaked out of the uterus, a podalic version and extraction was practically impossible. This left the choice between high forceps or embryotomy or a cesarean section. It was decided, on consultation, to do a cesarean section.

At 12 midnight a low type of transperitoneal cesarean section, going through the lower uterine segment, was performed. The placenta was in the upper part of the uterus and showed no evidence of having been detached in any part. The cord showed a peculiarity, to be described later. The incision into the uterus was closed. The abdomen was closed in layers, without drainage. The patient's condition was excellent, and she made an uneventful recovery.

The umbilical cord presents a very peculiar condition with the arteries of the cord making festoons from the cord in long loops from one to three inches in length. One of these loops had been torn and the fetus had bled to death, probably three days before labor began.

In all probability, the baby had caught its toe in one of these loops of blood vessels and had torn the blood vessel.

This case presents several unusual features: (1) Anomalous course of blood vessels of cord. (2) Involuntary suicide of the fetus. (3) Unusual cause of prenatal discharge of blood from uterus.

Psittacosis, or Parrot Fever.—Psittacosis, or parrot fever, is primarily a disease of birds which can be conveyed to persons through more or less intimate contact with recently imported infected parrots, and sometimes by parrakeets, love birds, canaries, and possibly other tropical species. It is, therefore, of especial interest to all bird fanciers.

The symptoms of the disease in birds are not sufficiently characteristic to be diagnostic; hence, the disease in them is usually detected only after one or more human cases of parrot fever have resulted. The birds which usually are responsible for the human cases are those which have been imported recently and usually they also show signs of illness, such as loss of appetite, roughing of feathers, and sometimes cough and diarrhea, although occasionally birds apparently well have served to infect persons as long as eight months after importation. The facility with which the disease is spread from infected birds to man makes it one of the most highly contagious diseases known.

Infected persons usually become sick in from six to fifteen days following exposure and have symptoms suggesting influenza. The onset is sudden, with chilly feeling, intense headache, and fever. A peculiar type of localized pneumonia soon develops. It is largely upon the extent of this pneumonia and the age of the patient that the outcome of the disease depends; it is especially dangerous to persons over sixty years old. In mild cases the initial pneumonia ceases to spread and the fever and other symptoms tend to disappear after eight to ten days. In severe cases, however, the lung becomes progressively more and more involved, and unless the process can be checked death will result, usually in the third week of the disease. When recovery sets in, the physician must guard his patient from getting about too soon, as relapses during the weeks immediately following the return of the temperature to normal occur not infrequently, though they tend to be milder than the original attack.—*Health News*, March 13, 1931.

Maryland Restricts Sale of Methanol Wood Alcohol.—The sale and distribution of methanol wood alcohol will be stringently regulated in Maryland, according to the provisions of the Edmunds Bill which was adopted by the legislature and signed by Governor Albert C. Ritchie, Tuesday, April 7.

The bill prohibits the sale of methanol wood alcohol whether sold for antifreeze or other commercial purposes unless sold in containers bearing a warning label stating that it is a violent poison and cannot be made nonpoisonous and will cause blindness or death if taken internally. Methanol must also be colored to prevent it from being confused with potable alcohol and must contain a substance which will cause vomiting if it is imbibed.

A record must be kept of all individual sales in containers of less than fifty-gallon drums, whether to be used as an automobile antifreeze, paint, or other commercial solvent, and the record must state the date, name and address of the purchaser, and intended use. The penalty for violation of the law includes a fine of not more than $500 or imprisonment for not less than three months nor more than one year or both.

The bill was endorsed by the Maryland Automobile Club and labor and public health organizations.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

HEMORRHAGIC DISEASES

STACY R. METTIER, SAN FRANCISCO.—The diseases termed "hemorrhagic diseases" or "hemorrhagic diatheses" not infrequently present very definite diagnostic and treatment problems. Confusion between true purpura and other hemorrhagic conditions occurs rather frequently. Purpura is characterized by extravasations of blood into the skin and mucous membranes and is commonly spoken of as a black and blue spot. In one instance it may appear as a symptom of an illness in which a favorable prognosis can be given, and in another as one with a definitely unfavorable prognosis. Since certain therapeutic procedures can influence some of the conditions having purpura or hemorrhage as clinical manifestations, it is desirable to make correct diagnoses and to avoid giving incorrect prognoses.

From the diagnostic standpoint, two general groups of purpura may be designated: one, idiopathic purpura; and the other, symptomatic purpura.

Idiopathic purpura is generally subdivided into the following types:

1. Idiopathic purpura in which there is neither a deficiency of blood platelets nor lack of the other factors which are known to play a rôle in the coagulation of the blood. Purpuric spots in the skin or mucous membranes as a rule are the only symptoms observed by the patient or found on physical examination. Another form of this simple purpura is the type described by Schönlein and is associated with painful joints. Henoch's purpura, another form, is characterized by abdominal pain and may be followed by bleeding from the gastro-intestinal tract. In any patient with true purpura there may be a combination of these various types.

2. The second type of idiopathic purpura is thrombocytopenic purpura hemorrhagica, the morbus maculosus of Werlhof. In this disease there is a marked decrease in the number of blood platelets. This primary form of purpura, especially when chronic, is amenable to surgical treatment in a large percentage of cases. Splenectomy is an effective therapeutic agent in a well-established chronic case of purpura, but may be used as an emergency procedure in a patient whose symptoms have been relieved by x-ray over the spleen and by transfusion during the active stage.

In addition to the idiopathic types of purpura there are those conditions in which purpura occurs as a symptom and these are designated as symptomatic purpura. Some definite etiologic agent or pathologic state predisposes to the purpura. As in the idiopathic purpuras this group is subdivided into two types, *i. e.*, those with and without deficiency of platelets. Examples of purpura, without deficiency of platelets, are to be found in bacterial endocarditis, cerebrospinal meningitis, miliary tuberculosis, and intoxication from certain drugs, such as quinin and iodids. Purpura with deficiency of platelets is the more common form, and may be found in aplastic anemia, in leukemia, from benzol and arsphenamin poisoning, and in other conditions.

Purpura is to be differentiated from those conditions due to lessened capillary resistance in which extensive subcutaneous, intramuscular, and subpericardial hemorrhages occur. Scurvy is an example of this type of hemorrhagic extravasation resulting from vitamin C deficiency, here depending upon a disappearance of the intercellular substance of the minute capillaries.

The diagnosis of purpura, however, should not be made on a single symptom or sign or on the result of a single laboratory procedure, but by a careful study of the history, physical status, and laboratory findings. It is important to know from an individual who has had symptoms and signs of chronic blood loss whether any other members of the family have such a predisposition or if they have had a tendency to bruise easily. On physical examination a search should be made for ecchymoses, petechiae, telangiectasiae, and jaundice, and particular attention should be paid to determine the presence of enlargement of the spleen, the liver, and the lymphoid tissue. In addition to the routine erythrocyte, leukocyte and differential counts and the hemoglobin concentration, it is important to determine the presence or absence of abnormalities of the blood such as may be determined by the reaction of the leukocytes to the oxydase stain; the number of reticulated red blood cells and platelets per cubic millimeter of blood; the time that elapses before bleeding stops after puncture of the skin; the time that elapses before coagulation of specimens of blood in a series of test tubes takes place, and the character of the clot. In some cases it may be of value to determine the icterus index and the fibrin content of the blood.

The important clinical factors in chronic thrombocytopenic purpura are as follows: It is rarely familial. The spleen may or may not be palpable. The blood platelets are greatly reduced in numbers and the bleeding time is prolonged. The blood clots in normal time but it does not retract, which is in contrast to hemophilia. Anemia usually is not a feature and there may be slight elevation of the leukocyte count.

Purpura is to be distinguished from other diseases with chronic hemorrhagic tendency such as hemophilia, familial hemorrhagic conditions, and hemorrhagic telangiectasis.

JOHN WILLIAM SHUMAN, LOS ANGELES.—The caption means diseases in which hemorrhage is a prominent symptom. Hemorrhage is a very alarming objective symptom. The clinical picture of gross hemorrhage, external or internal, is most graphic, namely, the rapidly increasing pulse, the ghastly pallor, cyanotic lips, air hunger, thirst, and the premonition of impending death. The picture is more vivid if blood is spurting or flowing from a laceration, is being expectorated, vomited, defecated, urinated, or menstruated. Gross internal hemorrhage and visceral purpura are too frequently not diagnosed until "too late." Two factors are always present in hemorrhage: permeability of blood vessel and uncoagulation of the blood.

Purpura, meaning purple, is a medical term ancients used to designate a disease in which small purple patches formed in the skin, mucous and endothelial membranes due to an extravasation of blood. If the hemorrhage was large, like a "black eye," it was called an ecchymosis. We now know that this type of bleeding is a graphic symptom of an underlying disease. It is frequently observed in the newborn from syphilis; in the hemophiliac from an inherited liability to bleed; and in the purpura simplex, arthritica (rheumatica of Schonlein), and the visceral type of Henoch's. These last three items are really grades of the same thing. Once fever was called a disease and had many subheadings. Now we know it to be the result of anything which produces superactivity of the thermogenetic centers. Vicarious menstruation as a belief was exploded when we realized that hemorrhages from nose, gums, lungs, gastro-intestinal tract, and in the skin were symptoms and that only the uterine mucosa menstruates.

Within the past two weeks the writer has noted the following expressions of our subject among his patients: rose spots from typhoid; preagonal purpura on the legs, thighs, and back from malignant endocarditis; and rashes from quinin and iodid. The first two were toxic phenomena, similar to what may be seen in typhus, measles, scarlet, meningitis, smallpox, and many other acute infectious diseases. The other two conditions were also of a toxic nature, similar to what may be seen from belladonna, mercury, snake venom, ergot, copaiba, benzol, and other medicines.

Purpura is a frequent phenomenon in the late stages of the hypertensive cardiorenal-vascular, the cancerous and the tabetic patients. Time will not erase from the writer's memory a patient studied ten days in St. Vincent's Hospital of Sioux City, in the search for the cause of a periodic epistaxis, purpura, and slight hematuria. That patient subsequently went to the Mayo clinics, where the removal of a tuberculous right kidney cured his purpuric complex.

Attention is called to thrombocytopenic purpura hemorrhagica, a subject under recent discussion in the literature, which appears to be due to an overactivity of the reticulo-endothelial cells of the spleen, causing destruction of the blood platelets. The spleen has, therefore, been especially condemned by some surgeons who advise splenectomy as a cure for the above.

Prognostically petechiae have always been looked upon as a grave symptom. In the newborn, the debilitated, and the senile, this is true.

Rational therapeutics include: rest; encouragement of the patient and of his solicitous comforters; specific therapy along with calcium, arsenic and transfusion in selected instances.

* * *

E. RICHMOND WARE, LOS ANGELES.—It should be borne in mind that hemophilia is a rare disease. The unusual combination of circumstances which permit it to occur in a female has never been definitely established. Practically, therefore, the condition is found in males only, although it is transmitted through the female of hemophiliac families.

There is very little reason for the confusion existing between the various types of purpura and hemophilia. An accurate history should be sufficient to make a relatively certain differential diagnosis between the two. It should be easy to ascertain the characteristic hereditary aspects of hemophilia, which are, briefly, a family with a tendency in the male members to suffer unexplained, prolonged hemorrhages, this peculiarity being transmitted through the females, although appearing actively only in the males. They are not subjects of diffuse purpuric rashes. No characteristic physical signs accompany the disease, except the resultant effects of hemorrhages in various localities. Chief of these are joint deformities which may be severe enough to cause some absorption of bone and ankylosis. Owing to the frequency of severe hemorrhages during childhood, hemophiliacs usually do not reach mature adult life.

No morphological changes are found in the blood, and there is no deficiency in the number of platelets as is found in thrombocytopenic purpura. However, the clotting time is much prolonged, which is also true of Howell's prothrombin time test. Usually there is no change in the bleeding time, and the clot when once formed is firm and retractile. The factor responsible for the failure in the blood to clot promptly, is generally considered to be a qualitative impairment of the circulating prothrombin present in the platelets. This substance, however, appears to be present in satisfactory amounts in the connective tissue cells and juices outside of the blood stream. Therefore care should be used when withdrawing blood from the vein for determining the clotting time. Should the needle not be inserted directly in the first attempt, the value of the test is much impaired. There is no danger in withdrawing blood from hemophiliacs by needle puncture of the skin or vein. With ordinary technique severe hemorrhages do not occur.

Hemophilia is such a distressing and usually fatal hereditary disease that members of bleeder stock are assuming a grave responsibility in marrying and producing children. When the disease

first manifests itself, every precaution should be taken to safeguard the child from injury, cuts, or bruises in his play and work. All bleeders should be typed and should have available appropriate donors of like or compatible blood groups.

When actual bleeding occurs, it is doubtful if any local measures are of much value except the application of cephalin (or kephalin), which represents an unsaturated phosphatin from the pulp of fresh brains and is usually marketed in the form of gauze saturated with the material and preserved in vacuum-sealed tubes. Solutions of this substance have been reported to be effective as a prophylactic when taken by mouth over a period of several months. Repeated transfusions are of proven benefit. They should be given in considerable amounts and preferably by the direct method without the addition of any anticoagulant to the blood. As the life of the blood platelets is thought to be only about three days, it may be necessary to give several transfusions at frequent intervals. All hemophyliacs should be transfused prior to any surgical procedure, even if it be only the extraction of a tooth. Subsequent transfusions may be anticipated to control the expected bleeding.

The Lot of the General Practitioner.—Physicians have been slow to realize that their practice is gradually being crushed to nothingness between two millstones: the one, state medicine; the other, endowed institutions such as medical out-patient clinics. By state medicine I do not mean such a complete system of civil service as is advocated by Doctor Haigh, but rather the gradual (and even more rapid) extension into the field of medical practice of the State Department of Public Health ("and Disease"?). Cancer clinics, tuberculosis clinics, rheumatism clinics—next in line will be heart clinics, diabetes clinics, anemia clinics, thyroid clinics, etc. These clinics are being put through so cleverly by the Commissioner of Health, always in response to an alleged "public demand," that they are upon us before we know they are started. How many physicians were present at the recent hearing of the Commissioner of Public Health on the institution of rheumatism clinics by the state? Exactly none.

The endowed institutions, sponsored and supported by millionaires with much surplus money, are also increasing by leaps and bounds and thus represent the other millstone which is gradually crushing the much maligned practitioner. The large number of millionaires is resulting in the formation of one institution after another. These may compete with one another for patients, and in the eagerness for numbers, patients are being admitted not only from the poor stratum of society, but from the middle class.

The practitioner should become mindful of these millstones. The medical firing line should be against the present extension program of the State Department of Public Health. If rheumatism clinics are not stopped now, we will have more and clinics of various types. Again, if we are not mindful of dispensary abuse, it will increase so that the only practice will be among the rich, and a relatively few doctors can take care of that.

The writer urges that groups of physicians throughout the state organize themselves for the purpose of combating these evils. If this is done, possibly the Massachusetts Medical Society will awaken to what is going on and will strive to coöperate and mediate between the state and the practitioners.—William Dameshek, M. D., in the ***New England Journal of Medicine,*** 204:403, 1931.

Hobbies of Medical Men.—Anyone who has ever scanned closely a lovely vagrant golden butterfly poised, on a June day, above an alabaster lily cup has felt the reason why the classic Greeks chose this lovely insect as the emblem of the soul—the Psyche. Those who knew best the late Dr. William Barnes of Decatur, Illinois, busied with the multifarious material duties of a neighborhood physician, can understand how he found rest indeed in his avocation of collecting butterflies.

Scientists the world over paid homage to Doctor Barnes and his butterflies. He was not "building a better mousetrap," this great man in a small community, but he was building up what is recognized as the greatest collection in existence of North American lepidoptera.

"Willy" Barnes was only five years old when he first began to collect flies and insects. He loved them for the magic beauty of their wings, their gossamer texture, their brilliant eyes. Later butterflies began to allure the dreamy, poetic child. At Harvard University, where he took his B. S. degree in 1883 prior to entering Harvard University Medical School, the young man had the great good fortune to come into contact with the great Agassiz. From this acquaintance, among other things, the young man learned the value both of making a collection of insects and of having it arranged systematically. After receiving his sheepskin in 1886, Doctor Barnes served an internship in the Boston City hospital, going thence to Europe for postgraduate work at Heidelberg, Munich and Vienna. All this while he managed to keep on collecting butterflies. In later years he found it necessary to have others do much of the actual work for him, but he spared simself neither trouble nor expense to have brought to him specimens from many remote places of both North America and Europe. Many a man has been sent to far places to bring back certain types.

Naturally enough the analogous collecting and preservation of flowers and especially of wild flowers was another hobby of Doctor Barnes' and here, too, he was considered an authority.

Before his death Doctor Barnes' collection had grown so large and so valuable that for the housing of it, the physician had constructed a special fireproof addition to his residence in Decatur. Further, since his passing, a curator has been retained to look after the collection and to file new specimens. Scientists from all over the globe call at the Barnes museum as it were to view his wonderful collection with its more than 500,000 specimens of butterflies and moths. June 13, 1930, President Hoover requested from the House an appropriation of $50,000 to enable the secretary of agriculture to purchase this collection, for obvious and scientific reasons. Government experts are said to value the collection at $1,000,000.

This is not the first time that the collection has been heard of in the national capital. The butterflies made a flying trip into politics in 1922 when Allen F. Moore of Monticello, then the congressman from that district, introduced a bill for the purchase of the collection for a total of $300,000 and an additional $10,000 for the cost of transportation of the collection to the Smithsonian Institution at Washington. This bill was never passed.

Some three years ago an effort was made to purchase this collection, and on behalf of foreign interests the St. Louis ***Post Dispatch*** carried an article commenting on the necessity for having some American trust, such as the Rockefeller Foundation, purchase the collection. About that time it was further stated that the Barnes collection is so complete and protean that it should be used as a basis for a national collection and sent to the national museum.

Doctor Barnes died May 1, 1930. Disposition of the collection made by this capable physician and excellent citizen is not as yet announced.

Doctor Barnes was a fellow of the American College of Surgeons and a member of twelve influential scientific and entomological associations and societies.—***Illinois Medical Journal,*** September 1930.

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Responsibility for Statements and Conclusions in Original Articles.—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publicaton.—Articles are accepted for publication on condition that they are contributed solely to this journal.

Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS*

ON SOME CALIFORNIA MEDICAL ASSOCIATION INTERNAL ADMINISTRATION PROBLEMS

Papers for the Next Annual Session.—These vacation months offer good opportunities in which to think over prospective papers for the 1932 annual session of the California Medical Association. With fewer society and staff meetings, there is greater chance for quiet thinking and study. Applications for places on section programs should be made at an early day to the section chairmen or secretaries, whose names and addresses may always be found on advertising page four of every issue of CALIFORNIA AND WESTERN MEDICINE. The section officers will welcome early applications.

The California Medical Association maintains the following twelve sections: Anesthesiology, Dermatology and Syphilology; Eye, Ear, Nose and Throat; General Medicine; General Surgery; Industrial Medicine and Surgery; Neuropsychiatry, Obstetrics and Gynecology; Pathology and Bacteriology; Pediatrics; Radiology (including Roentgenology and Radium Therapy); Urology. In addition, at next year's annual session a section on medical economics will probably be instituted. As soon as the Council appoints the acting officers of that section their names will also be printed in the section roster.

* * *

Annual Clinical and Research Prize Papers.—In the list of standing committees which is printed on advertising page two of every number of CALIFORNIA AND WESTERN MEDICINE, is a footnote concerning the prizes which are annually offered by the California Medical Association for the two best papers on clinical or research topics. In addition to the cash prize of one hundred and fifty dollars, a certificate of award is given. In many eastern states such prize offers would in all probability bring into being considerable competition. The officers of the Association hope that less diffidence will be displayed in next year's California Medical Association competition than has been evidenced during the last two or three years. Under certain conditions, papers may be read at scientific sections and still be submitted for prize registration and consideration. The names of all contestants are held confidential, publicity being given only to prize winners or honorable mention contestants. Application to the Association Secretary will bring complete information.

* * *

The CALIFORNIA AND WESTERN MEDICINE *Leaflet, "Suggestions to Authors."*—All members of the California Medical Association who contemplate writing papers for the state or a county medical society, and who have not received a copy of the CALIFORNIA AND WESTERN MEDICINE leaflet, "Suggestions to Authors," should write to the central office of the Association for a copy of the same. This leaflet, originally compiled by the former editor of CALIFORNIA AND WESTERN MEDICINE, the late Dr. Wm. E. Musgrave, and a revised edition of which was brought off the press in May of this year, contains many suggestions worthy of perusal by every member who contemplates writing a paper. Such a leaflet, insofar as it presents the experiences of others, may be of real service to all who write. It may be had by any member of the California Medical Association for the asking. Write to the central office of the Association, requesting a copy.

* * *

Annual Session Papers Intended for CALIFORNIA AND WESTERN MEDICINE *Should Not Be Too Technical.*—The June CALIFORNIA AND WESTERN MEDICINE, page 430, contained a report showing how large a number of unpublished papers from previous years were still in the hands of the editors. An earnest effort is now being made to bring all such off the press as rapidly as possible. This over-plus of material has come to the official journal because of the larger number of scientific sections in the Association and because some of the sections have had a considerable larger number of papers than other sections. This year it has been necessary for the Committee on Publications to return to a number of speakers at the San Francisco annual session the papers which

* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column which follows.

were there read, with the suggestion that they be submitted to medical journals of a more technical nature than CALIFORNIA AND WESTERN MEDICINE. On this point it may be permissible to quote from the CALIFORNIA AND WESTERN MEDICINE leaflet:

"*Subject Matter.*—Any paper is acceptable upon any phase of the broad subject of health betterment which, by reasonable interpretation, is adjudged useful to the best interests of the medical profession and of the public. Thus, contributions upon specialties that contain matter of value to *all* physicians, regardless of limitations in practice, are acceptable, but those by specialists for specialists should be offered to appropriate special magazines. . . . .

"*Reading Audience.*—It is well for authors to bear in mind, as the editor is required to do, that CALIFORNIA AND WESTERN MEDICINE is a general medical magazine. Probably more than 75 per cent of its physician readers are in general practice, and the other 25 per cent are divided between more than twenty specialties.

"Specialists, in preparing their articles for publication, should bear this fact in mind, and submit to CALIFORNIA AND WESTERN MEDICINE copy dealing with those phases of their specialty that ought to be interesting to the majority of physicians. The more limited and more highly technical articles, written primarily for an audience made up of specialists, should be submitted to special journals and not to CALIFORNIA AND WESTERN MEDICINE.

"It is extremely important for all authors to remember that our magazine is extensively read by technicians and workers in various fields of health and by some thousands of nonmedical readers, including some who are constantly looking for something that may be quoted in antiscientific propaganda."

* * *

Program Committees Should Plan for the Fall Meetings.—Sometime soon, the president and secretary of every component county medical society of the California Medical Association should hold a conference meeting with their respective program committees to discuss the scientific programs for the September to December meetings. Not only should local members who can bring messages of worth to their fellows be selected and urged to write on topics of interest, but the lecture roster of the California Medical Association as printed in CALIFORNIA AND WESTERN MEDICINE should be scanned for guest speakers and subjects. (See October, 1930, CALIFORNIA AND WESTERN MEDICINE, page 759.)

Case Reports.—A little special thought and preparation at this time may make a great difference in the standard of papers which will be presented this fall. Well written case reports are always of real interest and nearly always bring out good discussions.

Revision of Constitution and By-Laws.—The officers might also read the constitution and by-laws of their respective societies; making notations concerning seeming deficiencies. Such could be discussed at one of the fall meetings. The constitution and by-laws of the California Medical Association (copies of which may be had through the central office of the Association) contain many provisions of suggestive value, particularly so in the matter of disciplinary procedures. The text of every county society constitution and by-laws should be most explicit on such matters. Otherwise local misunderstandings or animosities may arise through hasty or improper action, with even the possibility of legal entanglements.

Medical Economics.—The many problems of medical economics which today confront the medical profession are most worthy of discussion. If these economic matters are not talked about it may be assumed that they are not often thought about; and if not thought about, there is danger of outsiders, laymen and others, seeking to thrust their viewpoints upon the people, largely at the expense and to the detriment of the medical profession. Organized medicine as represented by county medical societies should therefore provide for ample time and full discussion of these important economic problems. These tense economic times which all peoples are now-a-days experiencing, may be made to be good reminders to all of us to keep our feet firmly grounded in economic matters. Altruism and idealism are things which all should desire, but they should not dominate the picture. For, lest we forget, physicians and physicians' families must also have money in order to live properly.

Social Features—The social gatherings which in recent years have become a real part of the meetings of many smaller county societies, are worthy of trial by county units which have not yet inaugurated such. The need for such get-together meetings is as important, yes, even more important, for our larger than for our smaller county societies, where all members constantly contact with one another. In several of these larger communities, county society sections or independent medical organizations have almost specialized on such social features at meetings. Thus there is danger of cliquishness developing in such larger county units if no effort is made to let all members have the opportunity of meeting one another. If in small communities members can meet in clubs or hotels, for suppers preceding their meetings, it should be possible for the same plan to be instituted in the larger county societies. All that is necessary is attention to details in arranging such informal suppers at modest price, sending out the proper notices and of presenting diversified and live programs. If the scientific programs have medical and economic topics interspersed, the discussions are apt to be both general and good. It is hoped that the officer members who have these responsibilities will study their local problems in these matters and make an effort to take some of their meetings out of the dead or innocuous class. No better groundwork for concerted and unified action can be developed than that which is based on mutual understanding and kindly regard. When a medical society fails in these things, then no matter what its size or what the nature of its scientific papers, it may be said that it fails to measure up to the proper standard of efficiency so far as organized medicine is concerned.

OSTEOPATHIC UNIT OF LOS ANGELES COUNTY GENERAL HOSPITAL—NO LONGER UNDER THE MEDICAL SUPERINTENDENT

Los Angeles County General Hospital Hearing Comes to End: Actions Taken.—The controversy which during the last several months has been waging on the Los Angeles County General Hospital has been commented upon in this column in the last three numbers of CALIFORNIA AND WESTERN MEDICINE. The public hearing which was held finally came to a conclusion on June 18. On July 8 the Board of Supervisors announced its action thereon. A brief excerpt from the Los Angeles *Times* which practically epitomizes the situation, so far as the medical profession is concerned, is as follows:

"The controversy which has been waged for months around Dr. Neal N. Wood, superintendent of the General Hospital, was terminated yesterday by the Board of Supervisors when he was removed as the head of the institution and made medical director of the institution, with the exception of the osteopathic unit.

"All charges of incompetency against Doctor Wood were whitewashed by the board. However, the supervisors voted unanimously to turn over to the grand jury all evidence produced at the public hearings wherein accusations against the doctor were aired. This, it is asserted, was requested recently by the investigating body.

"Mr. Norman R. Martin, who organized the County Welfare Department in 1915 and later was superintendent of General Hospital from 1917 to 1923, was appointed executive superintendent of the institution. . . . .

"Martin appointed Doctor Wood as superintendent of the hospital in 1921. He also appointed Harriman to the office at the County Farm. . . . .

"A resolution framed by Supervisor Thatcher, agreed upon at a lengthy secret conference of the supervisors yesterday morning, brought the strife over hospital and welfare department to an end. It was adopted in an open meeting of the board without comment. . . . .

"Supervisor Thatcher's resolution, which settled the controversy, carried eight paragraphs as follows:

"1. That the Board of Supervisors of Los Angeles County hereby expresses full confidence in the integrity and ability of Dr. Neal N. Wood, and all charges against him are hereby dismissed.

"2. That the general superintendency be placed as provided by county charter under the superintendent of charities.

"3. That the superintendent of charities be instructed to appoint Norman R. Martin as executive superintendent of the hospital with full authority, approved by the superintendent of charities, to direct the activities of the hospital.

"4. That Dr. Neal N. Wood be made medical director of the hospital except Unit No. 2 (Osteopathic Unit), which is to be placed under the executive superintendent. Dr. Neal N. Wood to be authorized to act as adviser to the architects until the new unit is completed." . . . .

* * *

The Major Changes Which Were Made.—Thus came to an end a controversy concerning the largest of the county hospitals of California, which day after day had received much space in the metropolitan press of Los Angeles, and which was of very considerable importance to organized medicine.

The resolutions which were adopted and of which four of the items are above quoted, bring out several facts of special interest to the medical profession:

One—Dr. Neal N. Wood remains in the hospital, but only as medical director of Unit No. 1 (general medical and surgical), plus Unit No. 3 (psychopathic), plus the new sixteen-million-dollar "acute unit" which is still in course of erection. Dr. Wood is also to be adviser to the architects for this new unit.

Two—Mr. Norman R. Martin, the new executive superintendent or business manager of the entire hospital, was in charge of the Department of Charities and of the County Hospital from 1915 to 1923, when he resigned to engage in banking business. Mr. Martin, who returns to his old position in the institution, is a very able executive and made for himself a most creditable record during his former superintendency.

Three—The osteopathic unit (Unit No. 2) of the hospital, around which so much controversy has waged in the last ten years, in particular because the American College of Surgeons has objected to giving the Los Angeles County General Hospital its rating sanction (so long as the osteopathic unit was supervised by the medical superintendent), is now divorced from the remainder of the hospital.

* * *

Separation of the Osteopathic Unit Pleasing to the Non-Sectarian Profession.—This divorce or separation of the osteopathic from the medical units is a something to which few practitioners of non-sectarian medicine will take exception. Years ago the members of the Board of Supervisors saw fit to establish such an osteopathic unit, and that was no doubt their legal right. When that was done, however, there was created a condition of too intimate contact with the general medical and surgical units, which, having staffs of non-sectarian physicians and surgeons, led to one situation after another, all tending to make professional conditions worse than better. It is a relief, therefore, that the two units are now separate and that each can work out its own destiny in absolute independence. In taking that action, the Board of Supervisors did something that has the full sanction of the non-sectarian medical profession throughout the length and breadth of California. Time will no doubt demonstrate that it was an action wisely taken.

HOSPITAL INTERNS AND CASH STIPENDS

A New County Hospital Problem.—At the time of this writing, one of the problems which the Board of Supervisors of the County of Los Angeles has under consideration is whether or not interns shall receive cash stipends. This matter was made an issue when the medical superintendent of the hospital, Dr. Neal N. Wood, recently sent a letter to the Board of Supervisors

containing a recommendation that the cash stipends to interns and student nurses be discontinued.

The Los Angeles County General Hospital has a staff of some one hundred and ten interns, each of whom, in addition to his maintenance (room and board with a bookkeeping value of forty dollars), also receives during his first year of internship a cash stipend of twenty dollars a month. In the second year of internship this is increased to thirty dollars a month.

* * *

Executive Board of the Attending Staff Did Not Approve Recommendation to Take Away Stipends.—The recommendation which the medical director made on his own responsibility came up for consideration at a subsequent meeting of the Executive Board of the Attending Staff of the hospital. The Staff Board voted that the recommendation of the medical director did not have its approval. The Board of Councilors of the Los Angeles County Medical Association also went on record as not approving Dr. Wood's recommendations.

* * *

Pro and Con Reasons Put Forward on the Question.—It was the implied contention of the medical director that more efficient service was rendered by interns when they did not receive such cash stipends and that the standard of professional service in the entire institution would be improved if no such cash stipends were paid. Presumably, a similar line of argument applied to the student nurses.

The executive board members who held to an opposite viewpoint contended that they could not understand how such a small monthly stipend would make for poorer service by interns. Further, that after years of heavy expense in liberal arts and professional education, the services rendered by interns entitled them to small stipends such as above noted, if the institution had the means to grant the same. To many of such interns such small stipends meant much in relieving them of the necessity of asking parents for pocket money. Or if they desired and their means were limited, the stipends so received, if saved, could form the basis of little nest eggs for the first days of private practice. In Los Angeles, where many interns have come from considerable distances, such stipends could help defray costs of transportation.

As regards the student nurses, it is true that these apprentices receive their professional education from the hospitals; but it must be conceded that they also do much work of almost menial nature, which, even though they may have assumed the obligations to do such service in taking up the study of professional nursing, would seemingly entitle them to some slight cash stipend. To many of such girls such small cash stipends received while in training mean very much. In a pocketbook that would remain empty, even a small amount of silver seems large and attractive.

Such in brief is this new problem that has come to the front in one of our large county hospitals. Those who went to the defense of the interns and nurses felt, in part, that these young people were not in position to fight for themselves and that it was incumbent upon others to secure for them a fair hearing. What action the Board of Supervisors will take on the question is not known at the time this copy goes forward to the printer.

COMMENT ON THIS AND THAT

Preventive Work and Investigations in Ophthalmology.—All who wish to observe, should be able to notice that the altruistic spirit of the medical profession finds expression, not only in the kind and efficient service of thousands of physicians who care for indigent fellow citizens in the daily rounds of private practice, and in the financially non-remunerative services rendered in clinics and hospitals, but in the movements aimed to bring home to citizens, in the largest and best sense, a knowledge of preventive medicine.

Tuberculosis may be said to have been the human scourge which in the last few decades has been the recipient of an educational propaganda so efficient that the mental attitude of hundreds of thousands of people toward that disease has been changed. More recently the battle against cancer has come to the front, and a like change in psychologic viewpoint may be noted.

In all phases of medicine, however, the physicians who specialize are ever to be found among the pioneers who blaze the way for new and more effective methods of attack in their respective fields of endeavor.

Take, for example, diseases of the eye. At the recent White House Conference on Child Health and Protection, the report which was made for the National Society for the Prevention of Blindness mentioned several recent lines of investigation. Among such might be cited the work in glaucoma, the "black beast" of ophthalmology. The Massachusetts Eye and Ear Infirmary and Harvard University Medical School are doing notable follow-up work in their studies of patients suffering from this rightfully dreaded affliction.

Trachoma, that other eye disease which in Egypt, Europe, and even in our American commonwealths (as among the pure American mountain stock of states like Kentucky, and among the reservation Indians) leaves behind it a trail of suffering, impaired sight or blindness, is being featured for special attack through a fund of a quarter million dollars placed at the disposal of Washington University of St. Louis.

In days gone by it was the exception rather than the rule for industrial establishments and organizations to insist that employees must protect themselves from eye injuries which could cause impairment or loss of sight. With the advent of industrial compensation laws (and of protection policies the premiums of which were

largely based on permanent disability ratings), a change of attitude early became noticeable. Consequently we witness today a "Program for 100 Per Cent Eye Protection in Industry."

And in our schools, as in measures aimed to aid the deaf and the hard of hearing, so also sight-saving classes designed to conserve the sight of school children are becoming more and more a part of accepted school health and development programs.

The medical profession may take just pride in the places which its disciples are taking, not only in the discovery of new facts concerning human diseases, but in the generous spirit in which this knowledge is broadcast so that citizens everywhere may benefit through such advances.

* * *

"Healthmobiles" of the Los Angeles Department of Health and Corrective Physical Education.—The Department of Health and Corrective Physical Education of the Los Angeles School District has made for itself a distinct place and reputation. The Office of Education of the United States Department of the Interior recently called attention to the two clinics on wheels, the "healthmobiles," which were designed by the director of the Los Angeles Department, Dr. Sven Lokrantz, to bring health service to the children of schools not advantageously located for utilization of clinics in the city proper. Each healthmobile is equipped, among other things, with a full dental office so that necessary work may be done for children whose parents do not have the means to pay for such professional service.

One of the problems which early in his work came to the attention of Dr. Lokrantz, was that of rendering adequate service to those children of outlying schools in the geographically very large Los Angeles school district, who needed help and guidance in matters physical, but who came of families of such slender material resources that the children could not be sent to physicians in private practice or to clinics. The healthmobiles were one of the means through which Dr. Lokrantz attempted to meet this problem. Sweden, among European nations, has recently instituted such a system.

* * *

On the History of a Recent Cultist Group.—One of the large metropolitan newspapers of California has for years, as one of its Sunday magazine features, published a "Care of the Body" column, the editor of which is a doctor of naturopathy. The nature and standing of the column may be best attested by the kind of advertisements which flank its every Sabbath appearance. Those advertisements tell the real story.

A somewhat recent opening article in the June 7 issue was captioned, "The Rise of Chiropractic," the same caption being also the title of a book which was under review. The naïveté or what not of some of the paragraphs may justify the review comments to partial quotation. Readers of CALIFORNIA AND WESTERN MEDICINE are of course entitled to place their own evaluation on the quoted statements, which follow:

"We have had chroniclers galore who tell us about the great men of medicine—Aesculapius, Hippocrates, Koch, Ehrlich, Metchnikoff, Pasteur, and others. We have had chronicles of the life of Andrew Taylor Still, the founder of osteopathy.

"Few, indeed, have been the histories on chiropractic, a relatively new science, less than a half century old—yet which has found such a tremendous place in the treatment of the illnesses of the world.

"California contains one-fifth of the chiropractors of the country and it is therefore fitting and proper that the history of chiropractic should be written in this state by a Californian and published by a California house. . . . .

"The book is well written and easily read. It gives the status of the law in every state of the Union as it relates to chiropractic and should do much toward overcoming the latent prejudice of ignorance that our medical brethren so love to cast on the drugless groups, especially on the chiropractors.

"The lay person reading the book will learn that the training and education the licensed chiropractor receives is fully on a par with the training of any medical man in the country." . . . .

Is it any wonder, with press and radio publicity such as the above, especially of the glaringly inaccurate statements such as the last paragraph quoted, that a host of humble citizens are bewildered in choosing their doctors, when such propaganda is put forward as seemingly authentic and with the sanction of one of America's well-known newspapers?

* * *

In the opening paragraph of this column was mentioned the glaucoma studies being carried on at the Massachusetts Eye and Ear Infirmary and at Harvard University. In all civilized countries the keenest brains in ophthalmology have given of their best in an effort to permit man to be victor over glaucoma and with far from satisfactory results. Note now, how the naturopathic editor of the large metropolitan daily, who was referred to above, in his column of July 19 disposes of the subject in reply to a question sent in by one of his readers:

"Question: Can glaucoma be cured? If so, by what method?

"Answer: Glaucoma is an ailment in which the eyeball tends to enlarge and swell and ultimately blindness occurs.

"I know of no method of cure as established by the allopathic profession. The allopathic doctor invariably sends the patient to a surgeon who, in turn, recommends the removal of the eye on the theory that by doing this he prevents infection from traveling to the undiseased eye.

"Confronted with the alternative of the loss of one eye as against two, the patient acquiesces.

"The eye is removed and a glass one substituted.

"This is the usual history in the average case of glaucoma.

"In my own work I have had only a few cases and all I can report is the effect of each. . . . .

"There have not as yet been enough data gathered on natural methods in the treatment of this very serious disease. Nevertheless, I am firmly convinced that whatever hope there is for the cure of the ailment lies exclusively in the hands of the drugless profession."

Readers of CALIFORNIA AND WESTERN MEDICINE can draw their own conclusions from the above. One is much impelled to say, "What price, newspaper cultist health column propaganda?" Unfortunately, it is the lay citizens who pay the price.

* * *

The Family Doctor.—By way of contrast to the above may be quoted an editorial which was printed in the June 25 issue of the Los Angeles *Evening Express,* and entitled, "The Family Doctor." It is refreshing to read so wholesome a tribute from the pen of a lay writer. It was the *Express* also which printed the very temperate editorial on "Education of Lawyers" which was excerpted in last month's CALIFORNIA AND WESTERN MEDICINE (page 52). The editorial on "The Family Doctor" follows:

"Specialists in medicine as in other professions and callings have their place, their useful work to perform, and in the modern social organization are indispensable. Nevertheless, laymen who read what Dr. E. Starr Judd, president of the American Medical Association, says about the family doctor, that this reliable old friend should remain the foundation of medical service, will be pleased. Many of us long have felt it was time somebody in authority spoke up for the family doctor.

"He knows every member of the family. He can tell at a glance if any dosing need be done, or if a rest, a change of scene, or just a good talking to will straighten out what may be the matter. He is the wise counselor, the trusted friend and confidant. He rejoices with us in time of happiness and consoles us when sorrow enters the home.

"Some who have spoken for the family doctor have said that in reality the specialist has no knowledge which he does not possess. That probably is not so in all cases. Other things being equal, the man who has made a special study of some organ or function of the body ought to and no doubt does know it and its ailments and how to treat them, better than a general practitioner.

"The family doctor often sends patients to a specialist; as often as not, however, because he knows it will ease his mind and stop the patient from worrying.

"And for that very reason the family doctor is indispensable. He knows the mind as well as the body of each member of the family, and knows when for their own sake it is best to humor them."

* * *

Modern Civilization Makes for Poor Teeth and Better Dentistry.—The softening influences on the development and tone of our physical bodies, as induced in part through what one might well call the relatively luxurious living of our modern civilization, can hardly be denied. As an example of what hardy and rugged living will do for a race, the splendid teeth of some of the semi-civilized peoples, such as the Eskimos, who must chew their foods well and who, in spite of having no dentists, present teeth formations of splendid standard, are not infrequently referred to. Such peoples, at least as regards mastication, are supposedly examples to imitate.

The thought suggests itself that if such a contention or belief ever became well established in lay minds, and through lay press publicity was accepted by a large number of citizens, then one might look forward to the time when in addition to our numerous present-day pre-prepared breakfast and other cereal foods, it might be possible to purchase from up-to-date food purveyors all-day bone or rubber suckers which could aid in the development of teeth such as are possessed by Eskimos. Nevertheless, if such a day ever does come, it is more than possible that our colleagues of the dental profession will continue to find dental deficiencies in amounts sufficient to keep all of them as busy as ever.

Socialized Medicine in Russia.—Medical practice, like most other things in the Soviet Union, is very largely socialized. There is little private practice, and private hospitals are few, small, and rapidly diminishing in number. The great majority of Soviet doctors are state employees, working at fixed salaries.

That this socialization of medicine does not always work out very satisfactorily in actual life was shown when a brigade of volunteer investigators from the official organ of the Moscow Soviet, ***Rabochaya Moskva,*** made a flying survey of the medical institutions of Moscow and its environments. The first point that attracted the attention of the investigators was the extreme overcrowding of the hospitals and its accompaniment; the failure in some cases to render medical aid when it was needed. This last factor increased the number of fatalities. In the large Botkin Hospital 40 per cent of the deaths take place during the first five days after admission, "mainly," according to the investigators, "because the patients were not received into the hospital in time."

The report also contains the statement: "Patients who require surgical aid are in the most lamentable condition. A month and a half may pass before the patient obtains a bed in the surgical department."

The number of cases in which medical aid is refused in hospitals is increasing. One hospital reports a growth in this connection from 1540 cases in 1928 to 3000 in 1930, and another from 625 in 1928 to 1000 in 1930. In many cases persons suffering from such infectious diseases as erysipelas, mumps, measles, and typhoid fever are treated at home, and the investigators declare that "unquestionably the lack of isolation of such patients, in view of the present overcrowding, is one of the causes of the spread of infectious diseases among the population."

Queues form in medical dispensaries, as well as in front of shops which are selling products of which there is an inadequate supply. In many cases hours must be spent in these queues before treatment can be obtained. Red tape accentuates the difficulties of making the existing equipment serve all the applicants: it was found that the doctor must write out six separate slips for every patient whom he receives. It was estimated that the doctor had to write out two hundred such slips every day, with a consequent loss of two or two and a half hours.

The first-aid section of the Moscow Health Department was found to be in a sorry condition because it had only six automobiles to serve a population of about three millions. Patients must sometimes wait for weeks before they can be transported to a hospital. Another difficulty has come up in this connection because public taxicabs have been used to carry patients, and it is feared that the latter may become carriers of infectious diseases.

Preventive home treatment is made more difficult because such comparatively simple medicines as cod-liver oil, camphor oil, iodin, and quinin are sold, if at all, only on a doctor's prescription, which is given only to a person who is already sick.—***The Observer*** (England), January 18, 1931.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Brucella in Commercial Milk Supplies.*—Although extensive investigations have been carried on, and are being carried on, in California, on the incidence of undulant fever organisms or infection in dairy herds, relatively few investigations have been made on commercial milk as it reaches the consumer.

The results herein reported, although wholly negative, may be worthy of brief record.

The milk supplies of two areas were investigated, one urban and one rural, during the winter and spring of 1930. Samples were purchased directly on the market in San Francisco and Oakland at weekly intervals for four weeks. Each weekly set consisted of milk from each of four chief producers of certified milk, with two pasteurized milk samples, and one sample of goat's milk, on sale, pasteurized and bottled in this section. Thus, a total of twenty-eight samples were tested from the bay region. Samples from a rural district came from a town with a population of about two thousand in the Sacramento Valley. The town was supplied with raw uncertified milk from four producers. Samples† were purchased, packed in sawdust in thick balsa-wood boxes, and shipped. They were received within twenty-four hours in excellent condition. Each producer was represented weekly for four weeks, in all sixteen samples.

Tests were made of the milk as soon as samples were received. Milk in fifty cubic centimeter portions was centrifuged, cream and sediment mixed, and guinea-pigs were injected intramuscularly in one cubic centimeter amounts. In the urban samples, four pigs were used on each of the twenty-eight samples. With rural milk, six pigs were used per sample, two with an undiluted mixture of the cream sediment, two with a 1 : 100 dilution, and two with a 1 : 10,000 dilution. Thus 112 pigs were observed on urban, and 96 pigs on rural supplies. Routine plate counts were made of the milk as received.

Heart punctures were made on all animals at the time of inoculation and again at death for agglutination tests of the serums. No positive reactions were observed.

Animals were chloroformed after two and one-half (urban) or one and one-half (rural) months, and were posted and cultured immediately, using spleen specimens on liver hormone agar slants in duplicate, one partially sealed, and the other left unsealed. Cultures were incubated for at least ten days.

Neither series of animals showed any evidence in gross pathology or in culture of Brucella infection. The work was performed during a series of studies involving guinea-pig inoculations with virulent cultures. The picture of infection in animals from the same stock and ample evidence of positive cultures on identical medium were thus at hand. This method of isolating Brucella organisms from milk is generally considered to be adequate. It would hence seem that Brucella were not present with any frequency in the milk supplies tested at the time of the investigation.

Plate counts of raw certified, pasteurized, and goat's milk in the bay region supplies were usually around 500 per cubic centimeter, and rarely exceeded 1000 per cubic centimeter. This is consistent with health-department tests, and is supported by the fact that no animals died due to infection.

Plate counts of rural milk samples varied greatly, from less than 1000 to 21,000 per cubic centimeter, with perhaps a usual count of around 5000. By direct culture and by animal tests pyogenic cocci were noted. Hemolytic and green-producing streptococci, and hemolytic staphylococci were noted in all four milk supplies. Death of some guinea-pigs occurred within a few days of inoculation. Necropsy showed various types of infection, abscesses, and involvement of the thoracic cavity, congestion of lungs, pericarditis, and suppurative lesions from which cocci of the types noted were recovered. No evidence of tuberculous infections was noted.

SUMMARY

Inoculations of 208 guinea-pigs with repeated samples of milk purchased on the open market in the winter and spring of 1930 resulted in no indications of the presence of Brucella organisms. Samples represented were four certified, two pasteurized, one pasteurized goat's milk of the San Francisco Bay region, and four raw milk producers who supply a small community in the Sacramento Valley.

M. S. MARSHALL
DOROTHY JARED
San Francisco.

Subarachnoid Immunization.—On account of the almost complete absence of antibodies in the normal cerebrospinal fluid and the impossibility of materially increasing cerebrospinal humoral defenses by the usual methods of immunization, several laboratory scientists have tested the possibility of direct immunization of meningeal surfaces by the local injection of vaccines. One alleged successful clinical application is currently reported.

*From the department of bacteriology, University of California Medical School, and the Hooper Foundation, San Francisco.

†Thanks are due Dr. Monica Stoy Briner for her interest in procuring and shipping these samples.

Dr. D. R. Schamburov, of the Neuropsychiatric Institute, Moscow, Russia,[1] injected rabbits with heat-killed *B. typhosus* by the subcutaneous, intraperitoneal and subdural routes. By injecting the vaccine directly into the cerebrospinal fluid the agglutinin content of this fluid was increased a hundred-fold over that obtained by any other method of immunization. The locally formed or locally mobilized antibodies remaining at this relatively high titer for at least two months.

Emboldened by this result, he applied subarachnoidal vaccination to the treatment of "infectious chorea." Injection of 0.1 cubic centimeters of his locally standardized streptococcus vaccine by lumbar puncture was followed by sharp pains in the legs and marked rise in body temperature. Following these transcient symptoms "the disease ran an unusually favorable course." Schamburov, believes his favorable result justifies further study of subarachnoid vaccine therapy.

W. H. MANWARING, Stanford University.

Anthelmintic Properties of Certain Alkyl Resorcinols.—Two alkyl resorcinol derivatives, hexyl- and heptylresorcinol, have been tried successfully by Lamson and his associates [1] in the treatment of ascariasis and uncinariasis during the past year. While it is true that the presence of ascarids may not greatly disturb their human host, mechanical intestinal obstruction may occur or the parasites may open the way for other secondary invaders. Ascariasis is indigenous in the temperate zone, and in some southern states almost half the rural population is infested. Hookworm, likewise, is very prevalent in the southern and southeastern parts of this country, and is far more serious a problem. A progressive anemia, marked emaciation, and general debility are noted in patients suffering from mass hookworm infection.

Many anthelmintics have been tried in the past with varying degrees of success. Carbon tetrachlorid is effective in removing 95 to 100 per cent of hookworms from infested hosts, according to Lamson, Minot, and Robbins.[2] Cases of intoxication occur, however, which are neither preventable nor susceptible to treatment. These workers demonstrated that toxicity may occur when mechanical obstruction by ascarids is present, when the patient is an alcoholic, when there is undigested food in the stomach, or when calcium deficiency exists. Similar difficulties have followed the use of chenopodium oil (or its active principle "ascaridol") in ascariasis. Fatalities have resulted from the administration of therapeutic doses of these agents, and although such accidents are rare they seriously handicap extensive use of this form of treatment. In the face of these difficulties therapy in the field cannot be employed without endangering life, which necessitates the administration of these agents under carefully controlled hospital conditions.

In an effort to find a nontoxic yet effective anthelmintic, Lamson and his group in Nashville, Tennessee, tried hexyl- and heptylresorcinols with interesting results in the laboratory and clinically. Two conditions must be fulfilled, however, in controlling mass infestation, namely, single oral doses must give a maximum percentage of cures, and secondly, the therapeutic doses must not lie within the lethal range of the drug.

Both alkyl derivatives are irritating to the gastro-enteric tract, causing a burning sensation in the stomach, and in dogs crystalline hexylresorcinol produces small submucosal hemorrhages. Combined with the protein of food the agent is more toxic, and in alcoholic solution it penetrates more deeply into the tissues than when crystals are used. Leake et al.[3] have observed that the toxicity of the alkyl resorcinols increases with increase in the number of carbon atoms in the straight carbon chain, in experimental animals. Tissue changes may occur, following lethal doses in rabbits, notably focal necrosis in the kidneys and hyaline degeneration of the cells lining the tubules.

Hexylresorcinol should be given in gelatin capsules, washed down with water under fasting conditions, according to Lamson. Elliott and Barbour [4] have shown that hexylresorcinol is absorbed in the small intestine and is rapidly excreted in the urine. Doses of one gram three times a day over a ten-week period in normal adults cause no untoward symptoms, according to Leonard's experience.[5] Lamson recommends single oral doses of one gram in ascariasis, and was able to remove 90 to 100 per cent of the parasites in twenty patients with this dose. He feels "justified, therefore, in suggesting crystalline hexylresorcinol as an ascaricide in spite of its irritant properties."

The agent has been proposed by the same authors also in the treatment of hookworm disease. Similar doses removed 90 per cent of the worms in a carefully observed group of patients. Food taken before or immediately after treatment caused nausea and vomiting in a few cases. Oil solutions were effective but disagreeable to take. In another test group heptylresorcinol ("dihydranol") was employed by Brown,[6] who was again successful in treating worm infestation in a relatively large number of cases. This author gave single doses of one gram over an extended period to a total dosage of seventy grams of the drug to five adults without exhibition of toxicity. These drugs should be studied clinically in tapeworm infestation.

Preliminary clinical reports indicate that hexyl- and heptylresorcinol are superior to other anthelmintics now in use, and while they are not entirely free from toxicity in therapeutic doses, the resultant untoward effects are transient and not severe. Irritative properties must be appreciated, however, and efforts should be made to reduce these side actions to a minimum so that the agents may be used in mass treatment.*

HAMILTON H. ANDERSON, San Francisco.

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1 Schamburov, D. A. Zur Frage der Antikorperbildung im Subarachnoidalraum. Ztschr. f. Hyg. u. Infektionskr., cxi, 278, April 1930.

* For references see page 144.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

JUNIUS B. HARRIS.....President
JOSEPH M. KING.....President-Elect
EMMA W. POPE.....Secretary

OFFICIAL NOTICE

Fall Meeting of the Council.—The Fall meeting of the Council of the California Medical Association will be held at the Hotel Huntington, Pasadena, on September 26, 1931.

COMPONENT COUNTY SOCIETIES

SANTA CLARA COUNTY

The annual Palo Alto meeting of the Santa Clara County Medical Society was held at the new Palo Alto Hospital on the evening of June 17. On the afternoon of the same day the annual golf tournament was held on the Stanford University Course. Twenty-four members entered the tournament in the afternoon, and seventy-three were present for the evening program.

After an excellent dinner had been served in the hospital dining room the meeting was called to order by President Burchfiel. The yearly reports of the secretary and treasurer were read. The following new officers were elected for the ensuing year:

President, Dudley P. Fagerstrom, M. D.; first vice-president, Merlyn Maynard, M. D.; second vice-president, Robert Powers, M. D.; third vice-president, R. H. Prien, M. D.; secretary, Lucas W. Empey, M. D.; assistant secretary, Cletus Sullivan, M. D.; treasurer, Harry Hoag, M. D.

After the transaction of business the meeting was turned over to Dr. Esther Clark, president of the Palo Alto Medical Club. She then introduced Dr. Ludwig Emge, who presented a very instructive analysis of a series of cases of carcinoma of the ovary.

LUCAS W. EMPEY, *Assistant Secretary.*

YUBA-SUTTER COUNTIES

The Yuba-Sutter Medical Society met on June 9 to honor the three oldest members of this society, viz.: Dr. G. W. Stratton, Dr. T. P. Peery and Dr. J. H. Barr.

All the members of this society, and the following guests were present: Doctors June Harris, W. Briggs and F. F. Gundrum of Sacramento; Doctors Enloe and Moulton of Chico; Doctors Desrosier and Poag of Colusa; and Dr. Charles F. Keith of Williams.

The evening was spent in banqueting, with speeches and jokes during the dinner. No scientific papers were read.

The following officers were elected to serve one year: Allen E. Gray, M. D., Marysville, president; Leonard F. Sloan, M. D., Yuba City, vice-president; F. W. Didier, M. D., Wheatland, secretary and treasurer. Program committee: John A. Duncan, M. D., Marysville; P. B. Hoffman, M. D., Marysville; A. L. Miller, M. D., Marysville. Entertainment committee: Dr. Everett Gray, Marysville; Dr. G. S. Delamere, Marysville; Dr. N. E. Richardson, Yuba City. Delegate and alternate to California Medical Association: Dr. P. B. Hoffman, Marysville, and Dr. E. E. Gray. Board of Censors: Everett Gray, chairman; Doctor Delamere and Doctor Richardson.

F. W. DIDIER, *Secretary.*

CHANGES IN MEMBERSHIP

New Members

Alameda County—
Burton Abel Adams
William L. McWhirter
Fenton B. Parker
Roy Philson Stoops

Los Angeles County—
Fred Edgerton Abbott
Jacob Abowitz
Lewis George Babcock
Edward Smith Blaine
John William Earel
Leland M. Evans
Reginald Kiefer Francis
Charles Miner Miller, Jr.
Bernard Herman Smith

San Bernardino County—John Lewis Nevin.

San Diego County—James Thomas Parker.

San Mateo County—William George Rebec

Santa Clara County—Philip S. Haley, Helen Brenton Pryor.

Deaths

Fancher, Charles Rousseau. Died at Oakland, June 25, 1931, age 36 years. Graduate of Washington University School of Medicine, St. Louis, 1920. Licensed in California, 1920. Doctor Fancher was a member of the Alameda County Medical Association, the California Medical Association and a Fellow of the American Medical Association.

Loper, Asbury Nelson. Died May 2, 1931, age 72 years. Graduate of the University of Michigan Medical School, Ann Arbor, 1890. Licensed in California, 1901. Doctor Loper was a retired member of the Tulare County Medical Society, the California Medical Association and the American Medical Association.

Maher, Thomas Davis. Died at San Francisco, June 19, 1931, age 57 years. Graduate of University of California Medical School, San Francisco, 1896. Licensed in California, 1896. Doctor Maher was a member of the San Francisco County Medical Society, the California Medical Association and a Fellow of the American Medical Association.

Malpas, Ida May Lathrop. Died at San Francisco, June 17, 1931, age 56 years. Graduate of Cooper Medical College, San Francisco, 1897. Licensed in California, 1898. Doctor Malpas was a member of the San Francisco County Medical Society, the California Medical Association and the American Medical Association.

Suttner, Conrad Nicholas. Died at Los Angeles, July 14, 1931, age 63 years. Graduate of Kentucky School of Medicine, Louisville, 1896. Licensed in California, 1915. Doctor Suttner was a member of the Los Angeles County Medical Association, the California Medical Association and a Fellow of the American Medical Association.

* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

Windmueller, Emil. Died at Sacramento, June 29, 1931, age 62 years. Graduate of Rush Medical College, Chicago, 1894. Licensed in California, 1923. Doctor Windmueller was a member of the Sacramento Society for Medical Improvement, the California Medical Association and the American Medical Association.

Wright, Harold Walgrove. Died at Ojai, July 12, 1931, age 78 years. Graduate of Columbia University College of Physicians and Surgeons, New York City, 1905. Licensed in California, 1914. Doctor Wright was a member of the Ventura County Medical Society, the California Medical Association and a Fellow of the American Medical Association.

OBITUARIES

Gayle G. Moseley

1885-1931

On June 17, 1931, the medical profession lost a valuable member and the community a splendid friend in the death of Dr. Gayle G. Moseley.

Born at Hopkinsville, Kentucky, September 11, 1885, Doctor Moseley attended college at the Louisville School of Medicine, later taking postgraduate work in Chicago.

In 1902 he moved to Redlands and entered into general practice, specializing in diseases of the chest. He was considered an authority on diseases of the heart and chest.

In 1911 he was married to Miss Julia C. Caldwell, who survives him, as do two daughters, Louise and Nancy.

He moved to San Francisco in 1917 to become medical director for the Aetna Life Insurance Company, a position which he held until 1924, when he returned to Redlands for the benefit of its milder climate.

Doctor Moseley participated in all medical activities. He was a member of the Council of the State Medical Association and the president of the San Bernardino County Medical Society for several years. He took an active interest in the construction of the Redlands Community Hospital and organized the Physicians' Club of Redlands.

In the death of Dr. Gayle Moseley the medical profession has lost one of its most highly respected and valued members.

Louise B. Deal

1865-1931

On June 16, 1931, San Francisco lost one of its most energetic woman doctors in the death of Dr. Louise B. Deal. She was a graduate of Cooper Medical College in 1894, and was for many years on the clinical staff of the Children's Hospital and St. Luke's Hospital.

In 1925, she helped organize and was the first president of the Women Physicians' Club in San Francisco. During the World War she was particularly active in the American Red Cross, and while prevented by ill health from going overseas, was able to perform a great service to that organization. Doctor Deal was a great power for good in her own neighborhood, the Mission District, and in all civic problems. Among her affiliations she was chairman of the Child Hygiene Committee of the Federation of Women's Clubs, past worthy matron of the Order of Eastern Star; member of the Zeta Chapter, A. E. I., and a native daughter of the Golden West.

Doctor Deal will be remembered for her untiring energies in the advancement of bills and movements for the control of narcotics.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM L. RICH, Salt Lake City.....President
R. A. PEARCE, Brigham City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake City.....Associate Editor for Utah

OFFICIAL NOTICE—1931 ANNUAL SESSION

Attention of all members of the Association is called to the scheduled State Meeting, to be held in Salt Lake City, on September 9-11. The committees on arrangements have been busy for months and a program which has never been excelled by the Association can now be definitely promised.

The meeting will be characterized by the regular scientific program, a postgraduate course by men of proven ability in their subjects and by a health meeting open to the general public. There will also be the regular annual banquet quite as a matter of course which will essentially NOT be scientific, particularly if Bill Donoher does his part in anything like his usual form.

With such men as Brooks, Stalling, Thayer and Carlson appearing, it will be well worth the time of all members to attend. Doctor Carlson is expected to speak at the public meeting on the Public and Medical Aspects of Child Welfare and Protection, a subject in which he is very deeply interested and very well informed. This will be a review of the subject based on the findings of the White House Conference on Child Health and Protection, and should prove not only timely but informative in the extreme. It is of particular interest in view of the fact that Utah is very actively interested in the work of the White House Conference at this time.

Don't forget the dates, September 9, 10, 11, and possibly, the 12th, in view of the extensive program in hand.

Believe It or Not.—You can't live fast and live long.

You can't drink intoxicants and drive safely.

You can't safely light the kitchen fire with coal oil.

You can't run a car in a closed garage and always escape alive.

You can't get smallpox if recently successfully vaccinated.

You can't guess a gun is not loaded and safely point it at anybody.

You can't always judge the safety of a cook by the neatness of her dress.

You can't control an outbreak of contagious disease by closing the schools.

You can't keep a loaded gun in the house without being in constant danger.

You can't judge the safety of a glass of water by its clear, sparkling appearance.

You can't starve now and grow thin without weakening your resistance to disease.

You can't judge the desirability of a restaurant by the appearance of the room.

You can't eat largely and get fat without developing fatty degeneration of the organs.

You can't play long with explosives without their blowing up with surprising suddenness.

You can't determine how many people have coughed disease germs upon foods which are exposed.

You can't be careless in nursing a typhoid fever patient without danger to him, to yourself, and to others.

You can't do the most effective work when handicapped by an uncorrected physical defect or suffering from preventable disease.

You can't have unreported and unquarantined cases of contagious disease in your home without endangering your neighbors and arousing their enmity.—*Mississippi Health Bulletin.*

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

The American College of Physicians, San Francisco, 1932.—The American College of Physicians will hold its sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4-8, 1932. Following the clinical session, a large percentage of the attendants will proceed to Los Angeles, where a program, principally of entertainment, will be furnished April 9, 10 and 11.

Announcement of the dates is made now with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is president of the American College of Physicians, and will arrange the Program of General Session. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is General Chairman of Local Arrangements, and will be in charge of the Program of Clinics. Dr. Francis M. Pottenger, of Monrovia, is president-elect of the college, and will be in charge of arrangements at Los Angeles. Mr. E. R. Loveland, executive secretary, 133-135 S. Thirty-sixth Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming session.

CORRESPONDENCE

Subject of This Letter: "Medical Practice by Mail"*

420 State Office Building
Sacramento, California

June 16, 1931.

Mr. Albert Carter, Special Agent,
Board of Medical Examiners,
909 Pershing Square Building,
448 South Hill Street,
Los Angeles, California.

Yours of June 5, re: Carl F. Bokmeyer Remedy Company, medical practice by mail.

Dear Mr. Carter:

Medical practice by mail is no new innovation, inasmuch as far back as we can remember, advertising of extrastate medical concerns has been carried in the newspapers, and, we presume, will continue to so be carried.

The most flagrant example of practice by mail are the Chinese herbalists. Sporadically, the post office authorities issue a fraud order based upon the mail-order methods used by these Chinese herbalists, who immediately either change their name or the initial of their name or direct that mail be sent to another address, and continue merrily on without interruption. An example of this is Lau Yit Cho, Chinese herbalist of San Francisco, who, after it was reported that a fraud order had been issued denying him the use of the mails, is said to have included in his newspaper advertisements direction that he be addressed at a different street number; hence, the fraud order was valueless.

Comment on this peculiar situation whereby individuals scorn our federal regulations appears in the *Journal of the American Medical Association*, June 6, 1931, page 1975, in the paragraph headed "Holmes' Dead Shot." In said paragraph is related the evasion of fraud order by change of names, addresses, etc., the following comment being made: "It seems a pity that Holmes has not been prosecuted criminally by the federal authorities and sent to the penitentiary. Such flagrant flaunting of the powers of the United States Government by an obscure swindler is not likely to increase the respect of law-abiding citizens for their own government. Furthermore, such wholly inadequate punishment is not likely to act as a deterrent to other swindlers."

The *Journal of the American Medical Association* of June 6, 1931, page 1974, also carries the notation that a fraud order was issued November 8, 1930, against the Fong Wan Herb Company, Oakland, California, arising from advertising matter appearing in the San Francisco *Chronicle* and the San Francisco *Examiner*, it being related that "Examination and analysis of the herbs sold by this quack showed that they contained nothing that would be in any way beneficial or curative for the conditions for which they were recommended. . . ." The article further states the gross income of Fong Wan to have been $50,000 annually.

After this fraud order had been issued, our attention was called to an advertisement of the Fong Wan Herb Company printed in a San Francisco Italian newspaper in which customers were directed to address their correspondence to Mr. Fong Poy, 578 Tenth Street, Oakland, rather than to the Fong Wan Herb Company, 576 Tenth Street, Oakland, which address was boycotted under the fraud order. In other words, to evade the fraud order, it was apparently only necessary to change the name and also the street number by two figures, *i. e.*, from 576 to 578.

The Board of Medical Examiners has several times attempted to prosecute Fong Wan in Oakland for violation of the Medical Practice Act; however, according to the reports of our investigation department, the ways of the "wily Chinee" have seriously handicapped our endeavors.

Very truly yours,

C. B. PINKHAM, M. D.,
Secretary-Treasurer.

* * *

Subject of the Following Letter: Army Medical Reserve Corps Classes of Major H. C. Mallory

To the Editor: It may be of interest for members of the California Medical Association to know that members of our profession who are affiliated with the work of the Medical Reserve Corps of the U. S. Army have been indeed very fortunate during the past year in having the classes conducted by Major Herbert C. Mallory of the regular Medical Corps service and who is stationed at the Presidio.

Major Mallory came to us from the Pacific Northwest, where he greatly enlarged the scope and attendance of the Medical Reserve Corps classes, as well as the interest of the profession, developing a very enviable and enthusiastic attendance, both in numbers

* Editor's Note.—See also item on "Chinese Herbalists," printed in California and Western Medicine, June 1925, page 470.

and in the type of men attending. He then came to San Francisco and from a relatively small number who attended classes, has again developed a large and enthusiastic class by reason of his unusual ability and knowledge of the needs of the reserve officers.

Supplementing his work and through his efforts the members of the class were very fortunate in having delivered them a series of lectures by Colonel Bowen, a line officer and Chief of Staff. Several members of the class felt that the work which these officers have done for the members of the medical profession who are interested in national defense, merited mention in the official journal of the California Medical Association.

It is to be hoped that the War Department will allow the work, which has been so well conducted during the past year under such able officers, to be continued for some time to come. Those members of our profession who have been fortunate enough to attend the classes are very grateful and appreciative.

Very truly yours,

RUSSEL C. RYAN.

909 Hyde Street, San Francisco.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. IV, No. 8, August 1906

From some editorial notes:

Fire Risks.—It will well repay every physician in the country to study carefully the attitude of the various fire insurance companies toward the losers in the San Francisco disaster of last April. It appears from a careful investigation of the matter that very few members of our profession, in San Francisco, were insured for anything like the full value of their office property, and very many carried no insurance at all except upon their personal effects and homes. Probably $1000 would be in excess of the average amount of insurance held by physicians on their office fixtures. How far would that sum go in rehabilitating your office, if all things in it were destroyed? . . .

Merely a Specialty.—When will we fully grasp the fact that dentistry is really but a specialty in medicine; that it is just as much an integral part of medical science as orthopedics, and that it should carry with its special practice a thorough knowledge of medicine? All this is forcibly called to mind by a paper read before the Section on Stomatology, at the last meeting of the American Medical Association, by Dr. Eugene S. Talbot. "Rigg's disease," or "pyorrhea alveolaris," or as it has now come to be called, interstitial gingivitis, has made very many of us uncomfortable; we know but too well what are its local manifestations. . . .

From an article on "Choice of Anesthesia" by H. L. Parish, M. D., Calistoga.

The choice of an anesthetic calls for the consideration of the purpose for which it is to be given, the patient upon whom it is to be used, and the agent with which anesthesia is to be accomplished. . . .

From an article on "Local Anesthesia" by T. C. Edwards, M. D., Salinas.

Local anesthesia, by the introduction into the tissues of some neutral or physiologically active drug, has been practiced for a score of years or more. It seems, therefore, that we have had ample time to arrive at some definite conclusions as to its uses and abuses.

When the use of cocaine for this purpose was first brought to the notice of the profession, solutions varying in strength from 4 per cent to 10 per cent were used. . . .

From an article on "Effect of Proprietary Literature on Medical Men" by N. S. Davis, M. D., Chicago.

The printed matter issued by the manufacturers of proprietary and exclusive medicines is as various as are their products. The smaller part has a high scientific value; the larger part is more or less clever advertisement of wares for sale.

Naturally, as a monopoly of a good thing is sure to bring wealth to the manufacturer, almost every drug maker endeavors to place on the market one or many specialties of his own. . . .

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

DEPARTMENT OF PUBLIC HEALTH

By GILES S. PORTER, M. D., *Director*

SEASON FOR DROWNINGS BEGINS

There were 370 deaths from drowning in California last year. Most of these deaths occurred during the months of May, June, July and August, the number of deaths occurring during the principal months of the vacation season. Most deaths from this cause are in men. The number of women who drown is relatively small. About twenty-five per cent of all deaths from this cause are of persons who are between the ages of thirty-five and fifty-four years. The safest years for engaging in water sports are those between twenty and thirty-four years. Relatively few deaths from drowning occurred in persons who are of this age group. This indicates, perhaps, that individuals who are in the most vigorous stage of life are better able to protect themselves against the possible hazards of accidental drowning.

In the past ten years, 3851 persons have drowned in California. The greatest number of drownings to occur in any one year was in 1928, when a flood occurred on the Santa Clara River due to the collapse of the St. Francis Dam. Numbers of deaths from drowning in California, by years, are as follows:

1921	314
1922	341
1923	314
1924	340
1925	327
1926	407
1927	398
1928	708
1929	332
1930	370

The lives of many persons who have apparently drowned could be saved if a proper method of artificial respiration were used. The prone pressure method of producing artificial breathing is advocated by the United States Public Health Service, the American Red Cross and all leading public health organizations. Every individual who swims and everyone who may visit places where there is public swimming should know how to use this method of resuscitation. If applied promptly and properly it will save the lives of many persons who have apparently drowned. This method is also used with great success in the promotion of respiration in persons who have received heavy electric shocks, or who have been asphyxiated by gas. The approach of the vacation season makes it important for all swimmers and all individuals who frequent swimming places to learn and practice this method of resuscitation. The large industrial plants and many public service corporations have provided means for instructing their employees relative to the use of the prone pressure method.

Vaccination Histories for Cases of Smallpox—California

Year	Vaccinated within 7 years	Vaccinated over 7 years	Never vaccinated	History unobtainable	Total cases reported
1920	36	301	3,889	266	4,492
1921	47	340	5,108	84	5,579
1922	30	131	1,952	16	2,129
1923	27	91	1,906	2	2,026
1924	57	356	8,978	54	9,445
1925	31	233	4,636	21	4,921
1926	26	285	2,454	29	2,794
1927	13	61	907	3	984
1928	16	74	1,084	2	1,176
1929	24	103	2,307	35	2,469
1930	27	151	2,931	30	3,139
Totals	334	2,126	36,152	542	39,154

1920-1930 inclusive (cases with histories), 38,612.
Vaccinated within 7 years..... 334 cases or 0.86%
Vaccinated over 7 years..... 2,126 cases or 5.51%
Never vaccinated ..... 36,152 cases or 93.63%
Note.—Percentages based on 38,612 (number of histories).

Little Typhoid in California.—Typhoid fever is not epidemic anywhere in California. There have been relatively few cases reported in the state since the first of the year and these were not reported in large groups but were scattered throughout the state. The status of typhoid fever in California, at the present time, is better than it has been for many years. None of the summer resort areas of the state are unsafe, at the present time, because of typhoid fever or any other disease.

Rumors that the disease is epidemic in the Russian River section are wholly unfounded. There has been but one case of the disease reported from that region and that case was in a rancher who contracted the disease last April. There is no basis for the rumor referred to and any reports that would indicate the presence of an epidemic of the disease, at the present time, anywhere in California are absolutely without foundation of fact.

The Rabies Situation in California.—*The Journal* has directed attention repeatedly to the increased prevalence of rabies. The present situation as to the endemicity of the disease in California, particularly in the southern portion of that state, is alarming. Difficulties in the enforcement of a proper measure of control have developed. Thus the *Weekly Bulletin of the California State Department of Public Health*, May 23, states:

"Since 1920, forty-two human beings have died of rabies in California. In face of the fact that all of these cases were preventable, their occurrence constitutes a serious indictment of the people of California communities who will not permit the institution and maintenance of proper control measures. Even though the enforcement of such measures is as much in the interest of the dogs as it is in the interest of human beings, through some misguided idea efforts for the control of the disease are often denied. It is a tragedy more cruel than anything that could possibly be conceived in any drama."

Since 1910 and to date in 1931, 7748 cases of rabies have occurred in animals and since 1899, seventy-eight human deaths, two of these occurring only recently in children. In southern California 275 cases in animals have occurred since January 1, resulting in one human death. The presence in any community of this comparatively easily eradicated disease indicates that the community or its organized authority is not doing all that should be done to control the menace of rabies. California, or at least an important portion of the state, could be considered an epidemic focus of this serious and expensive but preventable disease. What a pity that the great state should be so dominated by fanatical cultists as to make such a situation possible.*—*Journal of the American Medical Association*, June 27, 1931.

* Editor's Note.—The above is here printed because it gives additional figures to those presented on the rabies situation in California, as printed in the July California and Western Medicine, page 49. Also an item on page 144 of this issue of California and Western Medicine.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Secretary-Treasurer of the Board

News Items, August, 1931

Some 133 applicants appeared for written examination at the July meeting of the Board of Medical Examiners, held in San Francisco July 6 to 9, inclusive, 1931, and 135 have filed applications for the written examination to be held in Los Angeles, July 20 to 23, inclusive. This group comprises approximately 230 graduates of medical colleges, thirty-six chiropodists and two midwives.

The board made the following changes in the status of licentiates:

Angus, David M., M. D., Seattle, certificate revoked July 7, 1931, based upon his conviction of illegal operation;

Barber, Schuyler A., M. D., Porterville, certificate revoked July 8, 1931, based upon narcotic charges;

Cramer, Fay E., M. D., Los Angeles, July 7, 1931, placed on probation for five years, without narcotic privileges, based upon a federal narcotic conviction;

Drader, Cecil R., M. D., Greenville, July 8, 1931, certificate suspended for a period of one year based upon record of narcotic conviction;

Dyment, Philip, M. D., San Diego, certificate revoked July 7, 1931, based upon revocation of his Georgia certificate, on which he obtained his California certificate;

Eda, Suzuno, midwife, Fresno, suspended July 7, 1931, for a period of one year;

Fiske, William C., M. D., Hermosa Beach, certificate revoked July 7, 1931, on plea of guilty to manslaughter charged following the death of Vera Nelson, 19, in his office last September;

Higgins, Orient C., M. D., Porterville, suspended July 8, 1931, for a period of one year, based on narcotic charges;

Hoffman, Ernest R., M. D., certificate restored July 6, 1931;

Howson, Christopher, M. D., Oakland, suspended July 8, 1931, for a period of one year for aiding and abetting an unlicensed practitioner;

MacLauchlan, Robert H., M. D., San Francisco, certificate restored July 9, 1931;

Newcomb, Ralph, M. D., Upper Lake, certificate revoked July 8, 1931, for violation of the terms of his probation;

Petersen, Dagmar, M. D., Selma, probation July 8, 1931, for a period of five years without narcotic privileges, based on narcotic dereliction;

Speicher, Asa Frye, M. D., Los Angeles, certificate revoked July 8, 1931 (by stipulation), following narcotic dereliction;

Stevens, David A., M. D., Wilmar, certificate revoked July 9, 1931, conviction statutory crime;

Weaver, Darrington, M. D., Los Angeles, certificate revoked July 9, 1931, narcotic conviction.

Attorney General Webb recently rendered an opinion that physicians who failed to file birth certificates within four days of the child's birth day are liable to prosecution under the statute which makes failure to file a misdemeanor.

According to reports, Bessie L. Barber pleaded guilty in Los Angeles June 22 on a charge of violation of the Medical Practice Act, sentence being suspended for six months and defendant placed on probation.

Report has been filed stating that Ethel Francis pleaded guilty in Los Angeles, June 22, to violation of the Medical Practice Act, sentence being suspended and defendant placed on probation.

In a jury trial in Department 6 of the Superior Court of San Francisco, which lasted three days, George D. Gillespie, licensed drugless practitioner and chiropodist, was on June 11, 1931, found guilty of second degree murder, arising from an alleged illegal operation, and on June 15 was sentenced to serve from five years to life, but on account of his advanced age, sentence was suspended pending good behavior.

"An injunction preventing the Kaufmann Medical Service, Ltd., from using his name to solicit new subscribers, was granted to Dr. Hubert R. Arnold, 450 Sutter Street, by Superior Judge Lile T. Jacks today. Doctor Arnold charged in his suit that the Medical Service Company had told his own patients that by subscribing to the Kaufmann service, they would not have to pay Doctor Arnold any fees for medical attention. Doctor Arnold alleges he is not connected with the Kaufmann organization" (*San Francisco News*, June 18, 1931).

"Five San Francisco physicians and a 'prescription broker' pleaded guilty to misdemeanor counts of violation of whisky prescription privileges in Federal Court today and were fined $500 each. Dr. Carl Keller, Dr. J. H. D. Roger and Dr. Mary Kroetz and M. A. Mathews, the asserted broker, appeared before Federal Judge A. F. St. Sure. Dr. J. M. Stowell and Dr. Michael Robinson were fined by Judge Frank H. Kerrigan. . . ." (*San Francisco Call-Bulletin*, June 30, 1931).

"Two Oakland doctors were fined in Federal Court today on their pleas of guilty to charges of violating the prohibition laws by issuing improper prescriptions. They were Dr. Floyd E. Lewis, 621 Dalziel Building, fined $500, and Dr. Theodore C. Lawson, 3113 Webster Street, fined $250. With eight other Oakland physicians and a pharmacy, they were indicted by the Federal Grand Jury Tuesday" (*San Francisco News*, July 9, 1931).

Reports relate that Madame Clara McNail pleaded guilty on June 22 in Los Angeles to a charge of violation of the Medical Practice Act and sentence was suspended for six months, she being placed on probation.

Reports relate that Ralph Newbre on May 29 pleaded guilty to a violation of the Medical Practice Act in Los Angeles and was sentenced to pay a fine of $300 or serve fifty days in the city jail, sentence suspended on condition of no further violation of the Medical Practice Act.

"Dr. A. Nusbaum, one of six doctors arrested on federal charges in the prescription racket here, recently pleaded guilty to a misdemeanor count of violating the terms of his permit and was fined $500 by Judge A. F. St. Sure. . . ." (*San Francisco Call-Bulletin*, June 29, 1931).

"In a ruling by the District Court of Appeals yesterday, Doctor (Painless) Parker was again made eligible to practice dentistry in California. The decision reversed the State Board of Dental Examiners, which suspended Doctor Parker from practice for five years on a charge of unprofessional conduct. Judge John T. Nourse, who wrote the decision, held that though the business affairs of various offices licensed by him may have been run by unlicensed persons, all dental work was done by licensed dentists. There is nothing wrong in this, the judgment holds" (*San Francisco Examiner*, June 24, 1931).

Reports relate that Margaret B. Quinn on June 8 in the courts of Los Angeles, pleaded guilty to a violation of the Medical Practice Act, sentence being suspended on condition that she comply with the law.

References to article of Dr. H. H. Anderson (see page 138).

1 Lamson, P. D., Wood, C. B., and Brown, H. W.: Proc. Soc. Exper. Biol. and Med., 27:1017, 1930; Lamson, P. D., Brown, H. W., Ward, C. B., and Robbins, B. H. ibid., 28:191 1930.

2 Lamson, P. D., Minot, A. S., and Robbins, B. H.: J. A. M. A., 90:345, 1928.

3 Anderson, H. H., David, N. A., and Leake, C. D.: Proc. Soc. Exper. Biol. and Med., 28:609, 1931.

4 Elliott, D. C., and Barbour, H. G.: Canad. M. A. J., 15:787, 1925.

5 Leonard, V.: J. Urol., 12:585, 1924.

6 Brown, H. W.: J. Parasitol., Abstract, December 1930.

The Influenza Play—A Fifteenth Century Burlesque.—The doctors are telling us that the best specific against influenza is laughter—but that is something which the citizens of Nuremberg discovered more than five centuries ago, during the great epidemic of 1414.

And if anyone doubts that 'flu was flu' in those days here are the symptoms which the victims suffered: sneezings, snufflings, shiverings, coughings, with such pains in back and head that the disease was called tannewechsel or tannewitzel—a blow on the forehead. Everybody caught it; no doctor could cope with it. The Emperor Sigismund wisely paid a visit to Rome to avoid infection. So the merchants of Nuremberg, where the epidemic raged worst of all, made a play of it—the Influenza Play.

A wooden stage was erected in front of the Town Hall, and the 'prentices were the actors, while the citizens crowded the market-place to watch the show. The scene represented a court of justice, and to the bar summoned, as a prisoner, Messer Tannewechsel, Mr. Influenza himself. He was represented as a weird, red-nosed, snivelling figure, a burlesque version of Messer Death, in the popular "Danses Macabres" of that day. And against him were called up a crowd of witnesses, his victims of all classes. When all had given witness, Messer Influenza was called upon to plead for himself. He protested his innocence, vowed his so-called victims had brought their troubles on themselves.

What a modern ring it has! for a play written five centuries ago. But no such specious pleas availed Messer Tannewechsel; judgment was passed; the prisoner at the bar found guilty and sentenced to summary execution by the sword. He was led away by Messer Pausenhart, the public executioner, and a burlesque beheading followed, amidst the shouts of laughter which rose from the delighted audience as Mr. Influenza died the death. Quite possibly that laughter did them good, according to the latest medical opinion. In any case, it is recorded that the epidemic was stayed and that no more fell sick in Nuremberg.—From the *Weekly Times*, February 5, 1931.

Rabies.—On May 12 last a young Waltham man was bitten on the nose by a dog. Suffering with rabies, he was taken to a hospital. The mayor of Waltham has been requested to have dogs restrained for ninety days.

This is the second rabies case of this year. Since there is no published report of the subsequent history of the dog that bit this young man it may be that other dogs are infected in that section of the state and an outbreak of the disease may occur at any time.

There were at least five hundred rabid animals in Massachusetts last year and the State Health Commissioner feels that the general public is not coöperative in dealing with the menace of rabies.

This disease is one of the especially horrible afflictions of mankind but many persons have never had friends afflicted with it and are skeptical of its existence.

Physicians should take occasion to impress on the people that rabies exists and must be met by active measures. Obstructionists may be responsible for human deaths.—*New England Journal of Medicine*, June 18, 1931.